A QUASI EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF WARM WATER FOOT BATH THERAPY ON FEVER AMONG CHILDREN WITH FEVER IN GOVERNMENT HEAD QUARTERS HOSPITAL, PUDUKKOTTAI

A DISSERTATION SUBMITTED TO,

THE TAMIL NADU DR. M.G.R MEDICAL UNIVERSITY, CHENNAI

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE

DEGREE OF MASTER OF SCIENCE IN NURSING

APRIL 2016

A QUASI EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF WARM WATER FOOT BATH THERAPY ON FEVER AMONG CHILDREN WITH FEVER IN GOVERNMENT HEAD QUARTERS HOSPITAL, PUDUKKOTTAI

Reg. No: 301417601

A DISSERTATION SUBMITTED TO,

THE TAMIL NADU DR. M.G.R MEDICAL UNIVERSITY, CHENNAI

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE

DEGREE OF MASTER OF SCIENCE IN NURSING

APRIL 2016

A QUASI EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF WARM WATER FOOT BATH THERAPY ON FEVER AMONG CHILDREN WITH FEVER IN GOVERNMENT HEAD QUARTERS HOSPITAL, PUDUKKOTTAI.

CERTIFICATE

Certified that this is the bonafide work of **Ms. G.PANDICHELVI,** Karpaga Vinayaga College of Nursing, Pudukkottai submitted in partial fulfillment of the requirement for the degree of Master of Science in Nursing under the Tamilnadu Dr. M.G.R. Medical University, Chennai.

SIGNATURE OF THE PRINCIPAL: ----------

Prof. S.SUMITHRA, **M.Sc(N)., [PhD]**
Principal,
Karpaga Vinayaga College of Nursing,
Pudukkottai.

COLLEGE SEAL : ----------

Place : Pudukkottai

Date :

A QUASI EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF WARM WATER FOOT BATH THERAPY ON FEVER AMONG CHILDREN WITH FEVER IN GOVERNMENT HEAD QUARTERS HOSPITAL, PUDUKKOTTAI.

DISSERTATION COMMITTEE APPROVAL:_____

RESEARCH GUIDE:_____

Ms. S.SUMITHRA, M.Sc(N)., Ph.D
Principal,
Karpaga Vinayaga College of Nursing,
Pudukkottai.

CLINICAL GUIDE:_____

Dr. N. MAHESWARI, M.B.B.S., DCH.,
Senior Civil Surgeon,
Govt. Head Quarters Hospital,
Pudukkottai.

A DISSERTATION SUBMITTED TO

THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE

DEGREE OF MASTER OF SCIENCE IN NURSING

APRIL 2016

A QUASI EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF WARM WATER FOOT BATH THERAPY ON FEVER AMONG CHILDREN WITH FEVER IN GOVERNMENT HEAD QUARTERS HOSPITAL, PUDUKKOTTAI

Certified Bonafide Project Work
Done By

Reg. No : 301417601

M.Sc. Nursing Degree Examination

Branch II – Paediatric Nursing

Karpaga Vinayaga College of Nursing

Pudukkottai

…… ……..
Internal Examiner External Examiner

……
Prof. S. Sumithra, M.Sc (N),Ph.D
Principal

A DISSERTATION SUBMITTED TO
THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI
IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE
DEGREE OF MASTER OF SCIENCE IN NURSING

APRIL 2016

TO WHOMEVER IT MAY CONCERN

This is to certify that the Ethical committee of Karpaga Vinayaga College of Nursing, Pudukkottai has discussed with its members the topic "A quasi experimental study to evaluate the effectiveness of warm water foot bath therapy on fever among children with fever in government head quarters hospital, pudukkottai" during the year 2015-2016 adopted by Ms. G. Pandichelvi and its implications on study subjects for her thesis for M.sc Nursing programme and the committee passed clearance for the same topic for her to pursue.

ETHICAL COMMITTEE

ACKNOWLEDGEMENT

With profound love, I owe my sincere gratitude to "**God Almighty"** for his immense grace and love showed up on me throughout my research study and for giving me strength, perseverance and blessing to peruse this task and accomplish it successfully.

My sincere thanks and gratitude to the **Prof. Kavitha Subramanian, M.Com, M. Phil, Ph.D, Managing Trustee** for providing the wonderful atmosphere which helped me while doing this research successfully.

I would like to express my special thanks and heartful gratitude to **Prof. Ms. S. Sumithra, M.Sc.(N)., Ph.D, Principal**, Karpaga Vinayaga College of Nursing, for her expert guidance timely support, encouragement, motivation and valuable suggestion not only in the study but also throughout the academic careers which helped to lay down a strong foundation for this study.

My sincere thanks to **Dr. N. Maheswari, M.B.B.S, DCH., Senior Civil Surgeon** Department of Pediatrics Government Head quarters Hospital, Pudukkottai for her timely support and constructive suggestions as a medical guide.

It is with deep respect, and sincere gratitude I extend my heartfelt thanks to **Mrs. M. Vanichitradevi, M.Sc. (N), Vice Principal,** Karpaga Vinayaga College of Nursing for her valuable suggestions, timely expert guidance, and uniting efforts for giving proper shape in bringing out the study successfully.

I also acknowledge my genuine gratitude to **Ms.S.Hemalatha, M.Sc.(N), Associate professor and Ms. Nemesha Chelvanayagam, M.Sc.(N) Lecturer,** Child Health Nursing Department for their support.

I offer my profound thanks to all **Head of the Department, and faculty** of Karpaga Vinayaga College of Nursing for their kind help and timely

suggestion, constant support, motivation, encouragement throughout my entire course of study.

I express my thanks to **Mr. Venkataraman, M.Sc. Statistics,** Department of statistics for the suggestions in analysis and presentation of data.

I am extremely thankful to **Prof.Navaneethan** Head of Department of English, J.J. College of Arts and Science, Pudukkottai for editing this manuscript.

My heartfelt thanks to **Ms. C. Saranya, B.Com, MLISc. Librarian** of Karpaga Vinayaga college of Nursing, Pudukkottai for her support and timely help for completing my study.

I would like to extend my thanks to **Ms. S. Maheswari, M.Com., B.Ed.(SE)** for her continuous help and prayers for the completion of research study. My sincere gratitude to all the participants of the study. Without their cooperation it would not have been possible to conduct the study.

I am specially thankful to **Sabari Printers** near Chinnappa Nagar, Pudukkottai, and **My Café Shop**, Trichy for their patience, co-operation understanding the needs to be incorporated in the study and timely completion of the manuscript.

My heartily thanks to my dearest **Classmates, Friends** and all **well wishers** for their help and best wishes at all time to complete my study.

Last but not the least; I thank my beloved husband **Mr.P.Selvam, M.A.,** for his unbounded love and affection, ceaseless support, optimistic encouragement and unparalleled guidance to successfully completing this part of my study.

I express my gratitude to my children **S.Arunprakash, S.Amirthatharsini** for their patience and support.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

A quasi experimental study to evaluate the effectiveness of warm water foot bath therapy on fever among children with fever was undertaken by Ms.G.Pandichelvi in partial fulfillment of the requirements for the Degree of Master of Science in Nursing under Dr. M.G.R. Medical University, Chennai.

OBJECTIVES

1. To assess the pretest level of body temperature among children with fever in the experimental group and control group.
2. To assess the post test level of body temperature among children with the fever in the experimental and control group.
3. To evaluate the effectiveness of warm water foot bath therapy on level of body temperature among children with fever in the experimental group.
4. Find out the association between the post test level of body temperature among children with fever with their selected demographic variables in experimental group.

Conceptual Frame work	:	J.M. Kenny's Open system model
Research design	:	Non randomized control group design
Population	:	6 to 12 years children.
Sampling	:	Non – Probability purposive sampling technique
Setting	:	Government head quarters hospital, Pudukkottai
Tool	:	Demographic variables, clinical variables

Data collection	:	A Quasi experimental, Non randomized control group (pretest post test control group) design was used. The timing of data collection was 6 weeks. Warm water foot bath therapy was administered to the children with fever. The level of body temperature was assessed by clinical thermometer.
Data Analysis		Descriptive statistics (frequency, percentage, mean and standard deviation) and inferential statistics (paired 't' test, unpaired 't' test and chi-square) were used to test the research hypothesis .

MAJOR FINDINGS OF THE STUDY

1. Experimental group of children with fever had experienced normal, low grade fever when compared with control group.

2. There was a significant difference in the level of body temperature between control and experimental group. This clearly indicates that administration of warm water foot bath therapy was effective in decreasing the level of temperature among children suffering from fever.

3. There was a significant decrease in the level of body temperature among children with fever in the experimental group after the administration of warm footbath therapy among children than the control group children who had undergone normal hospital routine measures.

4. There was no significant association between the level of body temperature among children with fever with their selected demographic variables in experimental group, therefore warm water footbath therapy can be given children between 6 – 12 years irrespective of their age, gender, religion, weight and height of the child, number of time admitted in hospital due to fever, no of days in hospital and duration of illness.

CONCLUSION

1. The warm water footbath therapy is safer and more effective intervention during fever among children.

2. The warm water footbath therapy maintains the level of body temperature and it is a cost effective with most comfort intervention during fever among children.

3. The warm water footbath therapy was effective in reduction of body temperature in children between 6 – 12 years during fever and it enhances rapid reduction of increased body temperature along with standard care than paracetamal only.

4. Warm water foot bath therapy has effect on improving circulation and stimulating the Cord reflexes which is good for the recovery.

CHAPTER I

INTRODUCTION

"If we are worried about the future, then we must look today at the upbringing of children"

Fever was first recognized as a human disease in Australia in 1935. Fever is also known as pyrexia and febrile response, which is defined as having a temperature above the normal range due to an increase in the body's temperature set point. A fever can be caused by many medical conditions ranging from the not serious to potentially serious.

Fever is common symptom of childhood illness. Fever is a natural response of the body that helps in fighting of foreign substances. Thermoregulatory center in the hypothalamus regulates body temperature. Once the temperature raises the person often feels warm, the cellular metabolism increases, oxygen consumption rises, heart rate and respiratory rate increases to meet the metabolic needs of the body. Increased metabolism uses energy that produces additional heat. Fever is usually associated with physical discomfort, and most people feel better when a fever is treated. But depending on the age, physical condition, and the underlying cause of fever many experts believe that fever is a natural bodily defense against infection. Children usually have a higher fever than adults because their immune system is less mature.

Thousand standard pediatric text books define Fever is a rectal temperature over 38^{o}c (100.4^{o}F) and an oral temperature of 37.8^{o}c (100^{o}F). During fever, dilation of internal blood vessels and constriction of peripheral blood vessels occurs. Hyperthermia is one of the most common reasons that parents seek medical attention for their children. It is estimated that fever is the primary complaint for 30% of patients seen by pediatricians.

Hyperthermia refers to the condition of having a body temperature greatly above normal. Hyperthermia is a common childhood problem faced by medical practitioners, nurses and parents in both hospital and community settings.

During fever, dilation of internal blood vessels and constriction of peripheral blood vessels occurs. It weakens the patient and makes him/her uncomfortable and anxious. Therefore fever as a symptom and its management is a concern to both healthcare professionals as well as patients. Providing comfort to patient is a basic and most important nursing intervention. Antipyretic therapy is an effective pharmacological measure to reduce fever. Along with pharmacological measures, many non pharmacological measures are there. One of the non pharmacological measures is complementary therapy, in that hydrotherapy is the effective one to reduce the fever. Hydrotherapy is one of the naturopathic treatment modality used widely in ancient cultures including India, Egypt, and China etc. Hydrotherapy is the external or internal use of water in any of its forms (water, ice, steam) for health promotion or treatment of various diseases with various temperature, pressure duration and site. The examples of hydro therapies are cold sponging, tepid sponging, external cooling, warm water therapy which were found to be effective in controlling the temperature.

SIGNIFICANCE AND NEED FOR THE STUDY

Fever however is not primary illness but a physiologic mechanism that has benefit effects of fighting infection. There is no evidence that fever itself worsens the cause of an illness or that it cause long term neurologic compilations. Thus the primary good of treating the febrile child should be to improve the child over all comfort either than focus on the normalization of body temperature.

The lowest rate of hospitalization was 25% in 2002. The highest proportions of hospitalized cases were reported as 70% in 2007 and 2009.

Fever is one of the most common reasons for a child to be taken to see a doctor and it is the second most common reason for a child to be admitted to hospital. Geographical distribution worldwide of fever which affects about six million people with more than 6, 00,000 deaths in a year. Almost 80% of cases of death occurs in Asia.

The statistics of fever is endemic in India. In 2015 the health surveys conducted by the central ministry of health in the community development areas indicated a morbidity rate varying from 102 to 2,219 per 1, 00,000 population in different parts of the country. The report of morbidity showed that in an urban slum 1% of children up to 17 years of age suffer from fever every year, more than 7,000 people mostly children have died across the country since 2010 because of fever.

The Hindu 2015 reported that about 64% of children have been admitted to government hospital with the symptoms of fever in all over the district in Tamil Nadu.

WHO reported that children between 6-12 years got admitted in hospital due to fever was 25% in the year of 2002 and it was increased to 71% in 2009 and 61% in 2010.

Fever is a common illness found among child due to various causes. Fever occurs because heat loss mechanism is unable to keep pace with excess heat production, resulting in an abnormal rise in body temperature. The level at which fever threatens health is often a source of disagreement among health care providers. A fever is usually not harmful if it stays below $102^{o}F$.

A true fever results from an alteration in the hypothalamic set point. Progeny such as bacteria and triggers the immune system. More WBC's are produced to fifth against infection. A mild temperature elevation up to $102^{o}F$ enhances body's immune system and WBC production is stimulated. Increased

temperature reduces the concentration often in the blood plasma, suppressing the growth of bacteria.

Although fever is beneficial for enhancing host defense, other factors such as the patients comfort and physiological response must be considered when fever occurs. Studies have shown that physiological manifestations during fever include increased oxygen consumption, increased heart rate, increased cardiac output, and elevated serum levels of catecholamine, increased cardio vascular and metabolic demands.

Although a fever could be considered any body temperature above the normal 98.6^0F (37^0c) medically, a person is not considered to have a significant fever until the temperature is above 100.4^0F. Most fever is beneficial causes no problems, and helps the body fight at infections. The main reason to treat a fever is to increase comfort.

Deupree, J.P (2012) stated that the fever management continues to be a significant challenge for both parent and health care providers about the knowledge of fever management, and increased the confidence in their ability. There are various pharmacological and non pharmacological measures available to mange fever. One of the pharmacological management for the fever is the administration of the antipyretics. It will provide immediate comfort to the patients but it is toxicity is a concern. Greater antipyretics efficacy has been shown to occur in children given the combination compare with either drug alone. However there are potentially complicating problem, that make such a practice inadvisable is due to its side effect that is hepatotoxicity. A variety of non pharmacological measures which is used to reduce fever which includes sponging with various solution, tepid water, alcohol, application of ice packs or cooling blankets, exposure to circulating fans and warm water foot bath therapy.

In complementary therapies most of the intervention done on the sole of the foot based on cord reflex. The local application of temperature produces

stimuli on cord reflex on the sole of the foot. These reactions are caused by local effect of temperature produces stimuli on cord reflex on the sole of the foot. These reactions are caused by local effect of temperature directly on the blood vessels and also by local cord reflex conducted from skin receptors to the spinal cord and back to the same skin area and the sweat gland. The intensity of this local effect is, in addition controlled by the central brain temperature controller. So that their overall effect is proportional to the hypothalamic heat control signal times to the local signal

Warm water foot bath therapy one of the hydro therapeutic measures which improve warmth, promotes muscle relaxation relives pain, dilates blood vessels, and promotes circulation and provide a soothing and healing effect. There are different non pharmacological and pharmacological methods to manage the fever in children. But there will be certain complication like shivering and vasoconstriction may occur. The routine procedure tepid sponge more discomfort during fever management in young and grown up children.

The pediatric nurse plays vital role during the child care providing management knowledge for parents during fever is essential to prevent the complications during fever. So the investigator like to assess the effectiveness of warm foot bath therapy to reduce the fever among children.

STATEMENT OF THE PROBLEM

A quasi experimental study to evaluate the effectiveness of warm water foot bath therapy on fever among children with fever in Government Head Quarters Hospital, Pudukkottai.

OBJECTIVES OF THE STUDY

1. To assess the pretest level of body temperature among children with fever in the experimental group and control group.

2. To assess the post test level of body temperature among children with fever in the experimental group and control group.

3. To evaluate the effectiveness of warm water foot bath therapy on level of body temperature among children with fever in the experimental group.

4. To find out the association between the post test level of body temperature among children with fever with their selected demographic variables in the experimental group.

RESEARCH HYPOTHESIS

- ✓ H_1: The mean post test level of body temperature would be significantly lower than the pre test level of temperature in the experimental group.

- ✓ H_2: The mean post test level body of temperature in experimental group would be significantly lower than the mean post level of temperature in the control group

- ✓ H_3: There would be a significant effectiveness of warm water foot bath therapy on the level of body temperature among children with fever in the experimental group

- ✓ H_4: There would be significant association between the post test level of body temperature among children with fever with their selected demographic variables in the experimental group

OPERATIONAL DEFINITION

EVALUATE

In this study its refers to the process of checking the level of body temperature among children with before and after administration of warm water foot bath therapy

EFFECTIVNESS

In this study its refers to the ability of warm water foot bath therapy to bring changes in temperature as measured by the investigator using a clinical thermometer.

WARM WATER FOOT BATH THERAPY

In this study its refers to the immersion of children feet and ankles in 100^0 F in warm water for 30 minutes which was measure by lotion thermometer.

FEVER

In this study its refers to rise in body temperature of children ranging from 100^0 F and above.

CHILDREN

In the study its refers the children refers to the age between 6 to 12 years who admitted in pediatric ward with fever in government head quarters hospital, Pudukkottai.

ASSUMPTION

- Hydrothermal therapy is another non-pharmacological effective method which used to reduce fever. Warm water foot bath therapy is one of the hydro thermal measures which reduce fever by cord reflex.
- Water being a good thermal conductor can influence temperature regulation mechanism of the body through circulation.

DELIMITATION

- The study is delimited to children admitted with fever in pediatric ward.
- The study is delimited to children age group between 6 to 12 years.
- The data collection period is delimited to 6 weeks.

CHAPTER II

REVIEW LITERATURE

A literature review is a written summary of the state of existing knowledge on a research problem. The task of reviewing literature involves the identification, selection, critical analysis and written description of existing information on a topic.

Polit, D.F. & Hugler B.P, (2006)

The review of literature is organized under the following headings

Section 1: Literature related to fever.

Section 2: Literature related to warm water foot bath therapy

Section 3: Literature related to studies on warm water foot bath therapy in reduction of fever

LITERATURE RELATED TO FEVER

Potter-Perry [2007] stated that pyrexia or fever occurs because heat loss mechanisms are unable to keep body with excess heat production, resulting in an abnormal rise in body temperature. A fever is usually not harmful if it is stays below 39^{o}C [102.2^{o}F] in adults or 40^{o}cC [104^{o}F] in children. A single temperature reading does not always indicate a fever. A true fever results from an alteration in the hypothalamic set point. To meet the new set point the body produces and conserves heat. The patient experiences chills, shivers, and feels cold; even through the temperature is rising. Fever or pyrexia, is an important defense mechanism. Mild temperature elevate up to 39^{o}C [102.2F] enhance the body immune system by stimulating white blood cell production. Fever also serves a diagnostic purpose. Fever patterns differ depending on the causative pyrogen.

The type of fever the duration and degree of fever depends on the pyrogens strength and the ability of the individual to respond. The term fever of

unknown origin [fuo] refers to a fever whose etiology or causes cannot determine by the health care providers. Treatment for a fever depends on its cause, any adverse effects, the strength, intensity, and duration of the elevated temperature. The objective of fever therapy is to increase heat loss, reduce heat production, and prevent complications. Non drug therapies for fever are increase heat loss by evaporation, conduction, convection or radiation. Antipyretics are drugs that reduce fever. Non pharmacological management such as hydrotherapy like sponging, cool environment, hot water therapy, and warm water foot bath therapy also provided for fever to maintain normal body temperature.

Taylor, Lillis (2008) Stated that the fever is a increase above normal (Considered to be 37^0 C or 98.6^0 F) in body temperature. A person with a fever is said to be febrile. Fever occurs in response to an optimum displacement of the thermo regulatory set point crypto kinas produced by pyegens (microorganism or substances that cause fever). Fever may also be the result of tissue injury such as from myocardial infarction, pulmonary emboli, cancer, trauma and surgery. Although the purpose of fever is not finally understood, it signals infection and increases immune function. The onset and significance of a fever from an illness differs by one's age. The onset of a fever which can be sudden or gradual typically is more rapid in children than in adults.

The mild elevation in temperature might indicate a serious infection in infants younger than 3 months of age do not have well developed temperature – content mechanisms. In older adults, who often have a lower baselines body temperature when the set point is increased from a bacterial or larval infection. The hypothalamus initials temperature rising mechanisms, shivering, piloerction vasocorection, and increased metabolism. Patients with fever may experience loss of appetite, headache, hot dualism flushed face, thirst muscle aches, and fatigue. Young children with high fever may experience serious and older adults may have periods of confusion and delirium.

Deborah M. Consolini, MD (2009) stated that the normal body temperature varies from person to person and throughout the day. Normal body temperature is highest in children who are preschool aged. Several studies have documented that peak temperature tends to be in the afternoon and is highest at about 18 to 24 month of age when many normal healthy children have a temperature of 101° F. However, fever usually is defined as a core body (rectal) temperature ≥ 38.0°C (100.4°F). Febrile seizures occur due to a hypersensitive hypothalamus in the brain. The hypothalamus is responsible for homeostatic core temperature regulation, (amongst other factors) and in younger children it is still a developing portion of the brain, which is susceptible to hypersensitive reactions to slight raises in body temperature.

Parthasarathy (2009) stated that the fever in children is one of the most common manifestations of an illness, which makes the parents seek medical attention early. Fever occurs when various infections and non-infectious processes interact with the host's defense mechanism. It is important that all children with fever are carefully assessed to find the cause. Never the less causes remains undetermined in a significant percentage of cases, leading to the designation of FWF (fever without focus) and FUO (fever of unknown origin). But even with the etiology being determined, fever remains the overriding source of anxiety. The normal body temperature is maintained between a range of 36.8 + 0.4C (98.2 + 0.7^{o}F) with a circulation rhythm of lowest temp at 6.00am (37.2^{0} C or 98.9^{0}F) and highest temperature of 37.7^{0}C or 99.9^{0}F at 4.00 pm. In general fever is considered to be present if rectal temperature is above 38.3^{0}C, oral temp is above 37.8^{0}C or auxiliary temperature is above 37^{0}C.

The cause of fever were acuter viral fever septicemia or bacteremia, vaccine associated fever, urinary tract infection, sinusitis, hyperthermia, occult bacteremia and Kawasaki's disease etc. The investigations for fever were complete blood counts, urine routine, and urine C/S, and blood C/S lumbar puncture (if indicated). The treatment of fever depends upon the degree of fever that the fever of <40 degree there is no benefit of antipyretic therapy. The

Goal of the treatment is to correct fluid deficit and ensure that the child's fluid intake is adequate. The supportive therapy for fever were remove excess clothing or blankets and keep the child in well ventilated room, Encourage to take extra fluid to compensate for increase insensible fluid loss and to maintain blood flow necessary for heat dissipation, Discourage vigorous activities, Tepid sponging and warm water foot bath therapy.

Tambulwadkar (2009) stated that the fever is any abnormal elevation of the body temperature. The body temperature above 40^0C (104^0F) is called hyperpyrexia. In the state of high fever, cardiac output and oxygen consumption increases. Also, the respiration and pulse increase. Children with hyperpyrexia may have headache, nausea, vomiting, and loss of appetite. They may get convulsions and may go into a delirium. If the body temperature is not lowered promptly to the normal level, it can cause brain damage. The causes of fever were Infection, Inflammatory diseases, Disturbances in temperature, regulating center, Dehydration and Effects of drugs of toxins. The symptoms of fever were increased the management of fever were started with complete bed rest and comfort measures provide to reduce fever. The non pharmacological management which may include hydrotherapy also will reduce the fever. The hydrotherapy was tepid sponging, hot water therapy and warm water foot bath therapy. Electrolyte balance should be maintained to prevent acidosis. Adequate fluids should be provided to relieve the thirst and treat the dehydration.

OP.GHAI (2009) Stated that the fever is a contrasted increase in body temperature over the normal values for an individual. The normal body temperature children are higher as compared to adult's exhibits a normal children thermal variation and varies between 36.1^0 C to 37.8^0C (97^0F -100^0F) on rectal measurement. There is a normal diurnal variation in the body temperature, it is lowest between 0 and 0600 hours and maximum between 1700 and 1900 hours. The core body temperature can be measured at several

sites including the oral cavity, auxiliary, rectal, and ear canal and over the temporal artery.

The rectal method is the most accurate method for measurement of temperature and fever is defined of rectal temperature of more than 38^0C or 100.4^0F, in children below the age of 4-5 years, the auxiliary temperature is on an average 0.5-1^0 C or 1-2^0 F lower than the rectal temperature more than 37.2^0C or 99^0F, in the children above the age of 4-5 years the oral method is suitable, the oral temperature is an average 0.5-1^0F or 0.25-0.5^0 lower than rectal temperature. Fever is measured in the oral cavity is defined as temperature more than 37.5^0C or 99.5^0F. Fever is a symptom and, therefore treatment of the undertaking cause is important. Tepid water sponging may be used as a complementary method to drug therapy in bringing down fever guiltily in some children.

Wongs (2010) stated that an elevated temperature most frequently from fever but occasionally caused by hyperthermia is one of the most common symptoms of illness in children. The manifestation is of great concern to parents. Body temperature is regulated by a thermostatic mechanism in the hypothalamus. This mechanism receives input from centrally and peripherally located receptors. When temperature changes occur, these receptors relay the information to the thermostat, which increase or degrees heat production to maintain a constant set point temperature. However, during an infection, progeny substances cause an increase in body; normal set point, a process that is mediated by prostaglandins. Consequently, the hypothalamus increases heat production until the core temperature reaches the new set point.

The principal reason for treating fever is the relief of discomfort. Relief measures include pharmacologic or environmental intervention. The most effective intervention is the use of antipyretics to lower the set point. Traditional cooling measures, such as wearing minimum clothing, exposing the skin to the air, reducing room temperature, increasing air circulation, and

applying cool, moist compresses are effective if employed approximately 1 hour after an antipyretic is given so that the set point is lowered. Cooling procedures such as sponging or tepid baths and hot therapy such as warm water foot bath therapy are also used to maintain normal body temperature.

Pubmed (2010) stated that the fever is a common childhood problem faced by health care personnel including doctors, nurses and others in both hospital and community settings. However, the nursing management of fever in children is often not based on research and remains inconsistent in practice. Several methods have been recommended to reduce fever in children, which include tepid sponging, fanning, alcohol sponging and antipyretics. However, controversy surrounds the use of tepid sponge for reduction of fever. The effectiveness of tepid sponging as a treatment alongside antipyretic varies between studies, with some finding that it is of no benefit and others suggesting that it is helpful. There is dearth of related studies in India.

Fallon, L (2010) stated that a healthy person's body temperature fluctuates between 97°F (36.1°C) and 100°F (37.8°C), with the average being 98.6°F (37°C). The body maintains stability within this range by balancing the heat produced by the metabolism with the heat lost to the environment. The "thermostat" that controls this process is located in the hypothalamus, a small structure located deep within the brain. The nervous system constantly relays information about the body's temperature to the thermostat, which in turn activates different physical responses designed to cool or warm the body, depending on the circumstances. These responses include: decreasing or increasing the flow of blood from the body's core, where it is warmed, to the surface, where it is cooled; slowing down or speeding up the rate at which the body turns food into energy (metabolic rate); inducing shivering, which generates heat through muscle contraction; and inducing sweating, which cools the body through evaporation.

Fever is an important component of the immune response, though its role is not completely understood. Physicians believe that an elevated body temperature has several effects. The immune system chemicals that react with the fever-inducing agent and trigger the resetting of the thermostat also increase the production of cells that fight off the invading bacteria or viruses. Higher temperatures also inhibit the growth of some bacteria, while at the same time speeding up the chemical reactions that help the body's cells repair themselves. In addition, the increased heart rate that may accompany the changes in blood circulation also speeds the arrival of white blood cells to the sites of infection.

Morven S Edwards,MD (2010) stated that the normal variation in body temperature, there is no single value that is defined as fever. However, the following are generally accepted values: Rectal temperature above 100.4ºF (38ºC)Oral temperature above 100ºF (37.8ºC) Auxiliary (armpit) temperature above 99ºF (37.2ºC)Ear (tympanic membrane) temperature above 100.4ºF (38ºC) in rectal mode or 99.5ºF (37.5ºC) in oral mode Forehead (temporal artery) temperature above 100.4ºF (38ºC) Auxiliary, ear, and forehead temperature measurements are easier to obtain than rectal or oral temperatures, but they are less accurate and may need to be confirmed rectally or orally in certain children.

Parul Dutta (2014) stated that the fever or pyrexia is the elevation of body temperature above normal ie. 37^0C or 98.4^0F. It is very common health problem is children. It is a symptom related to various disease conditions. There are variations in increased body temperature. Pyrexia is classified as the following low pyrexia 31.1^0C to 38.4^0C (99^0F – 101^0F), moderate pyrexia 38.4^0C to 39.5^0C (101^0F – 103^0F) high pyrexia 39.5to 40.6 C (103^0F – 105^0F, hyper pyrexia above 40.6^0C (105^0F). The causes of fever in children were dehydration, excessive dieresis, hot environment and evening time of the day, excitement and exaction, injury or disturbance of hypothalamus or brain, side effects of drugs, toxins, vaccines, chemical substances, and disease conditions

like leukemia, systemic lumps erythematosus, and tuberculosis rheumatic fever. The clinical manifestations associated with fever were hot dry skin, dehydration, flashed face thirsty nausea, vomiting and loss of appetite, headache, body ache, malaria, high colored scanty urine, increased pulse rate and respiration rate, chill, rigor, delirium, fainting attaché or convulsions. The investigations for fever were urine for routine examinations and blood examination.

The management of child with fever is initially symptomatic, but the exact cause to be detected and management to be started in the earliest possible time. Antibiotic trial is not rational and may be harmful to the children. Reduction of body temperature is the vital aspect, of the management, it can be done by giving tepid sponge, applying ice bag or farming is cool airy environment with good ventilation and warm water foot bath therapy. Provision of rest and comfort to reduce metabolic rate and allowing more oral thirds to prevent dehydration are important supportive measures. Light liquid and easily digestible high caloric diet to be planned according to Childs condition. Maintenance of personal hygiene especially, special mouth care, care of skin and loose absorbent cotton clothing are essential. Arrangement of days and other play materials help the child to co-operative and adjust with the illness.

LITERATURE RELATED TO WARM WATER FOOT BATH THERAPY

Sauna Beevi 2005 stated that the one home head out water immersions (WI) in various temperatures (32^{o}C, 20^{o}C, and 14^{o}C) produced various effects. Immersion at 32^{o}C did not change metabolic rate (MR) and rectal temperature but it lowered the heart rate (HR) by 15% systolic blood pressure (SBP) and diastolic blood pressure (DBP) by 11% and 12% respectively compared, with controls at temperature. Based on available literature, this review suggests that hydrotherapy was widely used to improve immunity and for the management

of pain, CHF, MI, chronic obstructed pulmonary diseases, asthma, anorectic disorders, fatigue, anxiety obesity, hyperthermia etc. It produces different effects on various systems of the body depending on the temperature of water and though these effects are scientifically evidence based, there in care of evidence for the mechanism on how hydro therapy improves these diseases.

Yammamoto 2010 stated that the hot water has been used for centuries as a healing and detoxifying medium. Hot water foot baths are a cheap simple way to relieve stress, insomnia, and fever, tired muscle by stimulating acupuncture points located on the bottom of each foot the warm water has been used.

Kazuo 2010 Stated that foot bath have originated from Japanese legend occurred about 1600 years ago. It was narrated by group of sickly people followed same route of pilgrimage and some doctors and renowned physicians found that foot bath has something to do with healing. The hot water footbath is used for reliving fatigue, stress, insomnia, anxiety and also maintains normal body temperature. It also provides comfort for the people. It can give a great relief without drugs among children.

A Mooventhan and L Nivethitha (2014) stated that the use of water for various treatments (hydrotherapy) is probable as old as mankind. Hydrotherapy is one of the basic methods of treatment widely used in the system of natural medicine, which is also called as water therapy, aquatic therapy, and pool therapy. The use of water in various forms and in various temperatures can produce different effects on different system of the body. Based on the available literature this review suggests that the hydrotherapy has a scientific evidence based effect on various systems of the body.

LITERATURE RELATED TO STUDIES ON WARM WATER FOOT BATH THERAPY IN REDUCTION OF FEVER

Department of pediatrics American University of Beirut (2006) Reported that a survey conducted on fever management practices among pediatric nurses in three regional acute Hospitals in Hong Kong Hospital. The aim of the study was to find if warm water bath is still in use to reduce fever and rationale behind. The survey result shows that 98.2% nurses used to removal of thick clothing and encourage fluid intake. 96.5% advice to seek medical advice. 89.4% were used warm bathing, 63.1% used to give tepid sponging, 56.8% used ice bag to reduce fever in children. It shows that warm bathing is ranked the third commonly used method for fever management. The rationale behind warm bath helps to reduce high fever, more comfortable than tepid sponging and other measures.

Sindhu Joseph [2011] A quasi- experimental research [pre-test, post test the control group] design was used for the present study. The conceptual frame work was formed based on Gail. W. Stuart Evidenced- based model. The samples consist of 40 children aged 6-14 years with the inclusion criteria selected by purposive sampling technique. Warm water foot bath therapy [WWFBT] was administered to the experimental group for 15 minutes along with standard treatment [paracetamol]. Standard treatment was only given for the control group. Reassessment of temperature was done for both groups after 15th, 30th, 45th minutes from the time of commencement of intervention.

The mean temperature of both experimental and the control group were compared to examine the effectiveness of warm water foot bath therapy. The data was analyzed by using descriptive and inferential statics such as paired, unpaired. t-Test. The rate of mean reduction [0.35, 0.78 and 1.29] in body temperature was more in experimental group after the intervention than in the control group [0.18, 0.21, 0.60]. There was significant difference in mean temperature at 15th, 30^{th}, 45 minute between experimental and the control

group. In the experimental group the mean pre test temperature was 100.55±1.01 and dropped to mean post test temperature 100.21^0F ±1.08 at 15^{th}, 99.75^0 F ± 1.04 at 30th and 99.22^0F ± 0.72 at 45th minute.

But in the control group obtained mean value of post observation at15th minute was higher than pre observation and the P value at 45th minute (P=0.006) was less than the 0.05. Therefore, there was reduction of body temperature in the control group only at 45th minute. The comparison between the two group shows that, the computed P values (P=0.00, 0.005, 0.003) were less than 0.05, thus it indicates that there was significant difference in temperature reduction between the two groups at different time interval there was no significant association between temperature reduction and selected baseline variables therefore WWFBT can be given to children above 6 years irrespective of their age, gender, diagnosis and duration of illness. Warm water foot bath therapy was effective in reduction of body temperature in children aged 6 – 12 years during fever and it enhances rapid reduction of increased body temperature along with standard care (paracetamol) than paracetamol only.

Sumita Datta (2012) conducted a quasi experimental study with non equivalent control group time series design was conducted on warm water foot bath therapy on 30 children with fever in the pediatric unit at Calcutta National Medical College and Hospital, Kolkata, by adopting non probability purposive sampling technique. The objectives of the study were to determine the effectiveness of warm water foot bath therapy in terms of differences in physiological parameters of children with fever between experimental and control group, Physiological parameters were assessed before giving therapy, 15 and 25 min after therapy. Result showed an average reduction of physiological parameters, (i.e., auxiliary temperature, pulse rate, respiration rate, blood pressure) after giving warm water foot bath therapy in experimental group but in control group physiological parameters are significantly increased.

Independent ‘t’ value among the mean physiological parameters between experimental and control group at 2nd observation, (i.e., 6.2., 2.13, 2.21, 0.39, 0.43 $p<0.05$) and at 3rd observation the computed ‘t’ values (16.5, 7.8, 5.84, 2.21, 2.15, $p<0.05$) were significant after warm water foot batch therapy. The researcher recommended further studies with large sample, also with other age group of children, wide range of auxiliary temperature, more number of observations, comparative study between warm water foot bath therapy and other types of hydrotherapy, comparative study between warm water foot bath therapy and use of antipyretics, effect of warm water foot bath therapy on other physiological parameter like oxygen saturation etc.

Conclusion

The above review of literature shows that the children with fever are encouraged to the follow warm water footbath therapy in reducing the temperature level and maintain normal body temperature. The warm water footbath therapy is very effective.

CONCEPTUAL FRAME WORK

This study based on J.M.Kenny’s Open System Model. All living systems are open, in that there is a continues exchange of matter, energy and information. Open systems have varying degree of interaction with the environment from which the system receives input and output and gives back out put in the form of matter, energy and information. For survival, all systems must receive varying types and amount of matter, energy and information.

The main concepts of the open systems model are input, throughput, output and feedback. In open system theory, input refers to matter, energy and information that enters in to the systems through its boundary. Through put refers to matter, energy and information. Output refers to matter, energy and information that are processed. After processing input, system returns output (matter, energy, information) to the environment in an altered state. Feedback

refers to environment responses to the systems, output used by the system in adjustment, correction and accommodation to the interaction with the environment.

This study was undertaken to determine the effectiveness of warm water footbath therapy among the study group. A pretest was conducted to identify the level of body temperature among the study subjects. A warm water footbath therapy was administered along with oral antipyretics for the experimental group as an input process for 30 minutes, whereas the hospital routine was given for control group. The throughput process involves the transformation of warm water footbath therapy to ensure the reduction of level of body temperature among children. The post test value will debit transformation of effectiveness of warm water footbath therapy as an output process, which would show possible decrease in the level of body temperature among children with fever.

The model Kenny's open system is the best suited for this study which was undertaken to determine the effectiveness of warm foot bath therapy among children with fever using pretest and post test method.

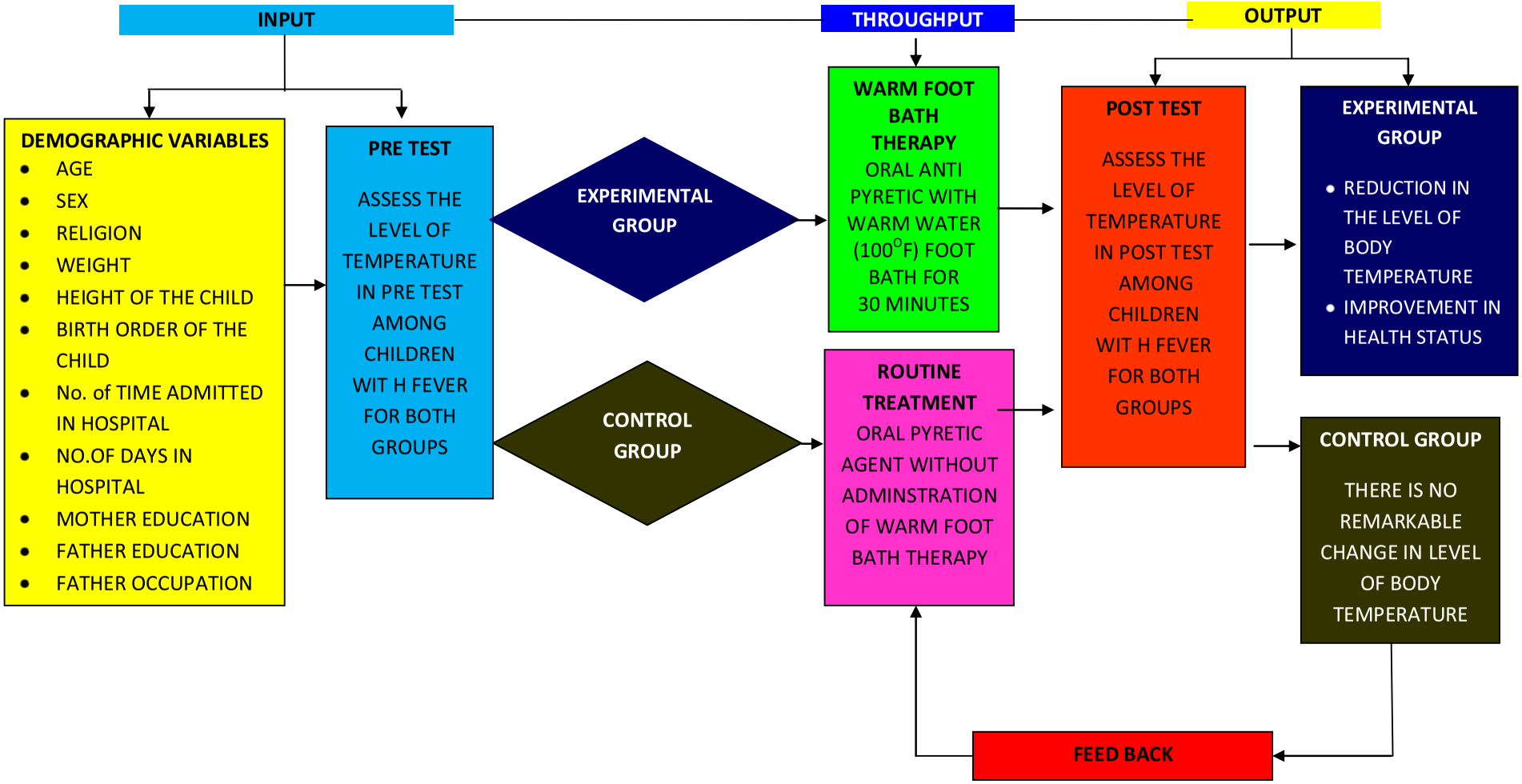


Figure 1: SCHEMATIC REPRESENTATION OF MODIFIED J. M. KENNY'S OPEN SYSTEM MODEL

CHAPTER III

METHODLOGY

Methodology of research refers to investigations of the ways of obtaining organizing and analyzing data, methodology studies address the development validation and evaluation of research tools and methods

Polit

Research methodology is the vital part of the study and this study deals with research approach, design, setting, population, sample, sample size, sampling technique, criteria for sample selection, development and description of the tool, validity and reliability, pilot study, procedure for data collection, ethical consideration, plan for data analyzes

RESEARCH APPROACH

Research approach indicates the basic procedure for conducting study. In order to achieve the objectives, an evaluate approach was found to be appropriate.

RESEARCH DESIGN

Quasi-experimental non randomized control group design was used for this study.

GROUP	PRE TEST	INTERVENTION	POST TEST
EXPERIMENTAL	O1	X	O2
CONTROL	O1	-	O2

O1- pretest level of body temperature in experimental and control group

O2- Post test level of temperature in experimental and control group.

X – Administration of warm water foot bath therapy for experiment group.

VARIABLES

INDEPENDENT VARIABLES

Warm water Foot bath therapy

DEPENDENT VARIABLES

Children with fever

SETTINGS

This study was conducted in Government Head Quarters Hospital, Pudukkottai, which is situated around 4km from Karpaga Vinayaga College of Nursing. The total bed strength of the hospital was 575.A separated pediatric unit was there with 30 beds. The total inpatient of pediatric ward were 600 per month. All type of pediatric cases got admitted in this ward. The average bed occupancy of pediatric ward was 98%, with that 60% of children's got admitted for fever. The reason for selecting this hospital was the availability of samples, facility for the study and expectation of co-operation from the medical and nursing staff for collection of data.

POPULATION

Population of study was the children with fever who were taking oral antipyretic drugs.

TARGET POPULATION

The target population of the study was children with fever between the age of 6-12 years.

ACCESSIBLE POPULATION

The accessible population of the study was children with fever between the age of 6-12 years admitted in government head quarters hospital, Pudukkottai.

SAMPLING

SAMPLE

The sample for this study consists of children with fever between 6-12 years admitted in Government head quarters hospital, Pudukkottai.

SAMPLE SIZE

The Sample sizes for the study consist of 60 children with fever between 6-12 years. In that 30 in experimental group and 30 in control group.

SAMPLING TECHNIQUE

In this study non probability-purposive sampling technique was adopted to select the sample.

CRITERIA FOR SAMPLE SELETION

INCLUSION CRITERIA:

The Children who were,

- Admitted with Fever
- The age between 6-12 years
- Present during data collection

EXCLUSION CRITERIA

The Children who were,

- Admitted with Fever associated diseases
- Non co-operative
- Admitted Post operatively
- Lesion and ulcer leg.
- Paralysis
- Not willing to participate

DESCRIPTION OF THE TOOL

The instrument was developed by the investigator with the guidance of experts. The tool consists of two sections.

SECTION I

Dealt with Demographic variables of children with fever such as age, sex of the child, religion, weight, height, birth order, number of time admitted in the hospital due to fever, no of days in hospital, fathers education, mothers education, fathers occupation, mothers occupation, type of drainage, drinking water.

SECTION II

- Dealt with Clinical variable. A clinical thermometer which was used to check the level of body temperature.
- Lotion thermometer which was used to check the temperature of the water

SCORING PROCEDURE

Normal	97 - 99 ^{o}F (36-37.2^{o}C)
Low Grade	99 - 100.9 ^{o}F (37.3-38.3 ^{o} C)
High	Above 102.6^{o} F (38.6 ^{o}C)

VALIDITY AND REALIABLITY

VALIDITY

The validity of the tool was established by consultation with guide and three experts in the field of child health nursing, one in the field of general pediatrics. The experts requested to check the relevant of the tool. The tool was modified according to the suggestions and recommendation given by them.

RELIABILTY

The reliability of an instrument is the degrees of consistency measures that attribute it's supposed to measured. Reliability of the level of body temperature was measured by using clinical thermometer

Reliability of the tool was estimated in the of subjects by using karl pearson correlation co-efficient and it was found to be 0.9.hence the tool was found to be reliable. (r=0.9)

PILOT STUDY

After obtaining formal administrative approval the pilot study was carried out for over a period of 6 days with 6 samples (3 in experimental and 3 in control) who met the inclusion criteria. The pilot study designed to find out the feasibility of the tool and the practicability of the study. There was no modification done and the pilot study samples were excluded from the main sample for the data collection.

The data collected was found amenable to statistical analysis and the study was found to be feasible.

DATA COLLECTION PROCEDURE

The period of data collection was conducted for one month. The formal written permission was obtained from the joint director of Government Head Quarters Hospital, Pudukkottai, to carry out the main study by the investigator. The data was collected on all seven days of the week. The nature and purpose of the study was explained to the parents of the children with fever. Informed consent was obtained. The samples were selected with non-probability purposive sampling technique in quasi experimental research design.

The selected samples were allocated in to two groups (group I experimental & Group II control) the level of body temperature on pre test was checked for both groups by clinical thermometer. The experimental group received warm water foot bath therapy for 30 minutes as in 3 times. The temperature of the water was 100^0F, the immersion of foot angle in the warm water was used as per the basic. The temperature of the water was measured by lotion thermometer and routine management was given for control group. The level of body temperature on post test was measured for both groups by clinical thermometer. An interview schedule was used to collect the demographic variables of the children.

ETHICAL CONSIDERATION

The dissertation committee prior to the pilot study was approved the research; permission was obtained from the principal and medical officer of the government head quarters hospital, Pudukkottai. The written consent was obtained from the parents of each participant of study before starting data collection.

Assurance was given to the parent of the subjects. The parents of subject were informed that they were free to withdraw from the study at any time.

PLAN FOR DATA ANALYSIS

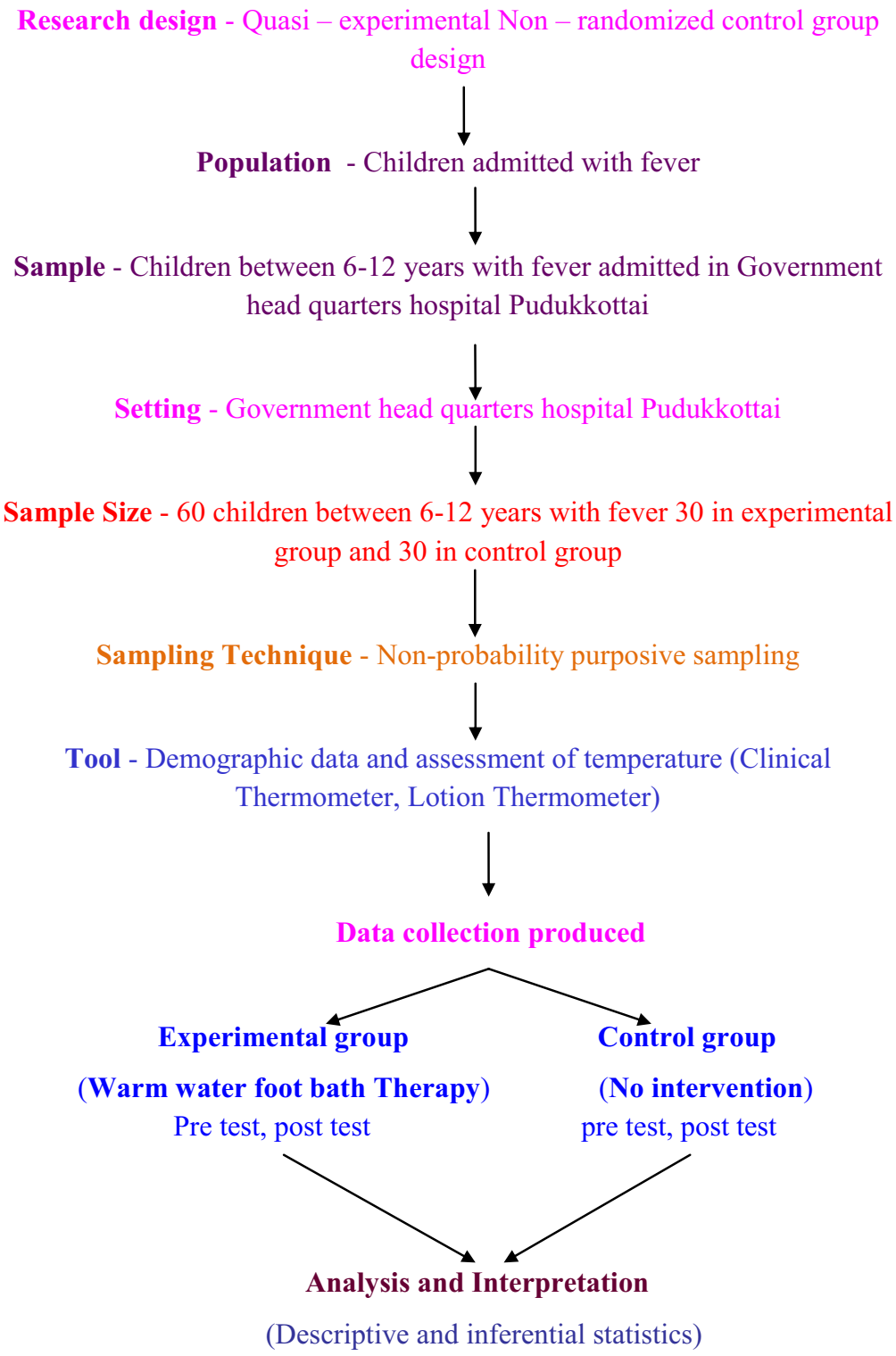
The collection data would be arranged and tabulated to represent the findings of the study. Both descriptive and inferential statistics would be used.

Descriptive statistics numbers, percentage, mean and standard deviation were used to analyze the demographic data and clinical variable.

For the distribution of demographic data simple percentage would be used.

Independent "t" test would be used to compare the post test level of body temperature between the experimental group and control group. Chi square test 'would be used to find out the association between demographic variables and level of body temperature on post test among experimental group.

Figure 2: Schematic Representation of research methodology



CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with analysis and interpretation of the data collected from 60 children at selected hospital, Pudukkottai. The data collected was organized, tabulated and analysed according to the objectives. The findings based on the descriptive and inferential statistical analysis are presented under the following sections.

ORGANIZATION OF THE DATA

Data collected were organised under the following sections.

Section A: Assessment of description of demographic variables of children with fever.

Section B: Assessment of pre-test and post-test level of body temperature among children with fever in the experimental and control group.

Section C: Assessment of effectiveness of warm water footbath therapy among children with fever in the experimental and control group.

Section D: Association of post test level of body temperature among children with fever with their selected demographic variables.

SECTION A: ASSESSMENT OF DESCRIPTION OF DEMOGRAPHIC VARIABLES OF CHILDREN

Table 1

Frequency and percentage distribution of children in the experimental and control group

N = 60(30+30)

Demographic Variables	Experimental Group		Control Group	
	No.	%	No.	%
Age of child				
6 - 7 years	11	36.67	12	40.00
8 - 9 years	13	43.33	12	40.00
10 - 12 years	6	20.00	6	20.00
Sex of the child				
Male	18	60.00	17	56.67
Female	12	40.00	13	43.33
Religion				
Hindu	16	53.33	14	46.67
Christian	9	30.00	9	30.00
Muslim	5	16.67	7	23.33
Others	0	0.00	0	0.00
Weight of the child				
20 – 24	6	20.00	6	20.00
25 – 28	14	46.67	12	40.00
29 – 32	10	33.33	12	40.00
Height of the child				
70 cm - 90cm	2	6.67	7	23.33
91cm - 120cm	13	43.33	13	43.33
121cm - 150cm	15	50.00	10	33.33
Birth order of the child				
First	12	40.00	11	36.67
Second	15	50.00	17	56.67
Third and above	3	10.00	2	6.67

Demographic Variables	Experimental Group		Control Group	
	No.	%	No.	%
Number of times admitted in hospital due to fever				
One time	5	16.67	7	23.33
Two times	13	43.33	17	56.67
More than two	12	40.00	6	20.00
No. of days in hospital				
3 days	10	33.33	0	0.00
5 days	12	40.00	19	63.33
More than 1 week	8	26.67	11	36.67
Father educational status				
Primary	4	13.33	6	20.00
Secondary	5	16.67	2	6.67
Degree/Diploma	9	30.00	4	13.33
Uneducated	12	40.00	18	60.00
Fathers occupational status				
Private	8	26.67	10	33.33
Government	4	13.33	8	26.67
Self employed	10	33.33	12	40.00
	8	26.67	0	0.00
Mothers educational status				
Primary	4	13.33	4	13.33
Secondary	2	6.67	11	36.67
Degree/Diploma	14	46.67	4	13.33
Uneducated	10	33.33	11	36.67
Mothers occupational status				
Private	10	33.33	10	33.33
Government	8	26.67	8	26.67
Self employed	12	40.00	12	40.00
Housewife	0	0.00	0	0.00
Type of drainage				
Open	14	46.67	4	13.33
Closed	16	53.33	26	86.67
Drinking water				
Tap water	9	30.00	9	30.00

Demographic Variables	Experimental Group		Control Group	
	No.	%	No.	%
Boiled water	12	40.00	10	33.33
Well water/above	9	30.00	11	36.67

The table 1 shows that in the experimental group, majority 13(43.33%) were in the age group of 8 – 9 years, 18(60%) were male, 16(53.33%) were Hindus, 14(46.67%) weighed 25 – 28 kg, 15(50%) were in the height range of 121cm – 150cm, 15(50%) were second born child, 13(43.33%) were admitted in hospital due to fever for two times, 12(40%) stayed 4 days in the hospital, 12(40 %) of fathers were uneducated, 10(33.33%) of fathers were self employed, 14(46.67%) of mothers were Degree, Diploma holders, 12(40%) of mothers were self employed, 16(53.33%) had closed type of drainage and 12(40%) had Boiled drinking water.

Whereas in the control group, majority 12(40%) were in the age group of 6 – 7 years and 8 – 9 years, 17(56.67%) were male, 14(46.67%) were Hindus, 12(40%) weighed 25 – 28 kg and 29 – 32 kg, 13(43.33%) were in the height range of 91cm – 120cm, 17(56.67%) were second born child, 17(56.67%) were admitted in hospital due to fever for two times, 19(63.33%) stayed 5 days in the hospital, 18(60%) of fathers were uneducated, 12(40%) of fathers were self employed, 11(36.67%) of mothers were Degree, Diploma holders and had secondary education, 12(40%) of mothers were self employed, 26(86.67%) had closed type of drainage and 11(36.67%) had well water for drinking.

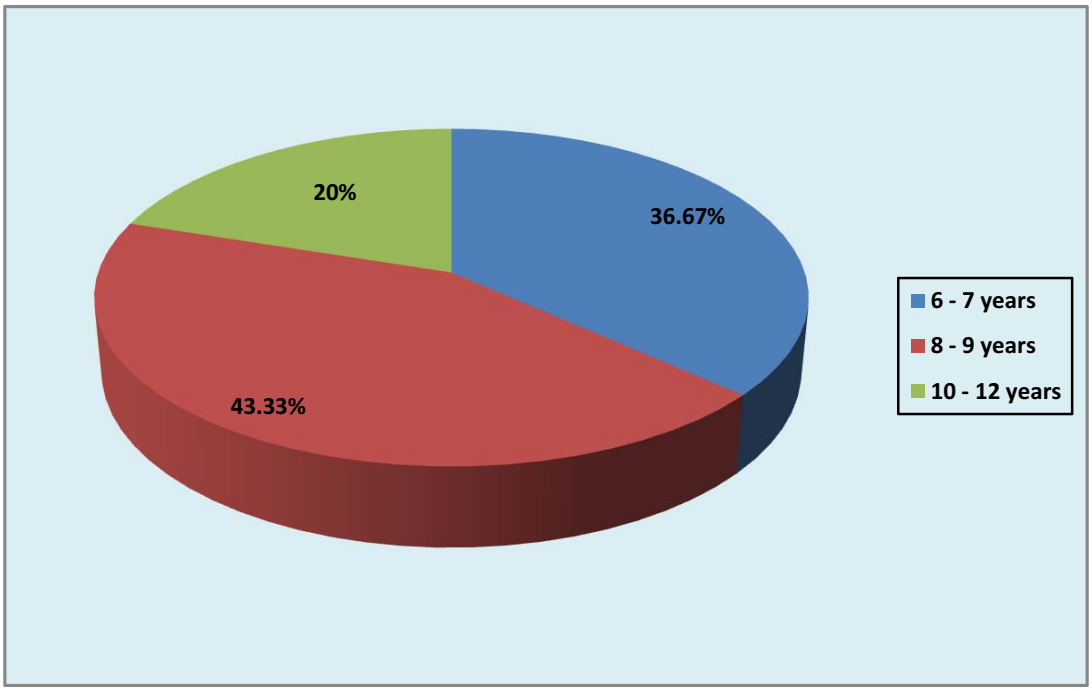


Figure 3: Percentage distribution of Age of Children with Fever in the Experimental Group

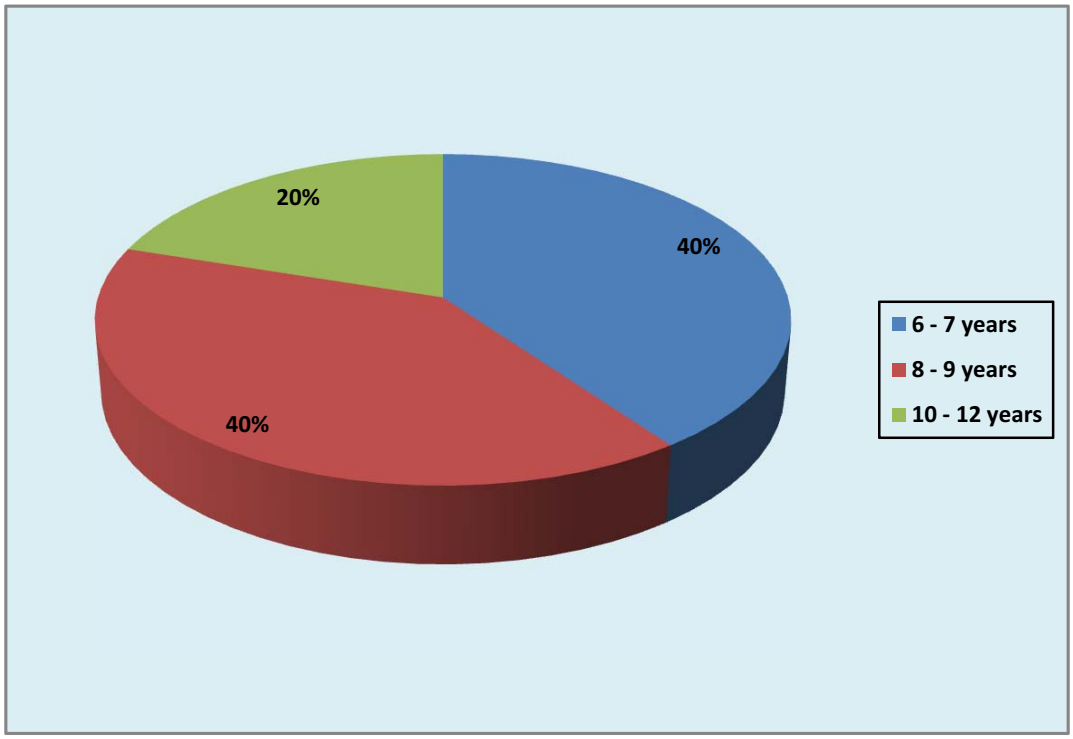


Figure 4: Percentage distribution of Age of Children with Fever in the Control Group

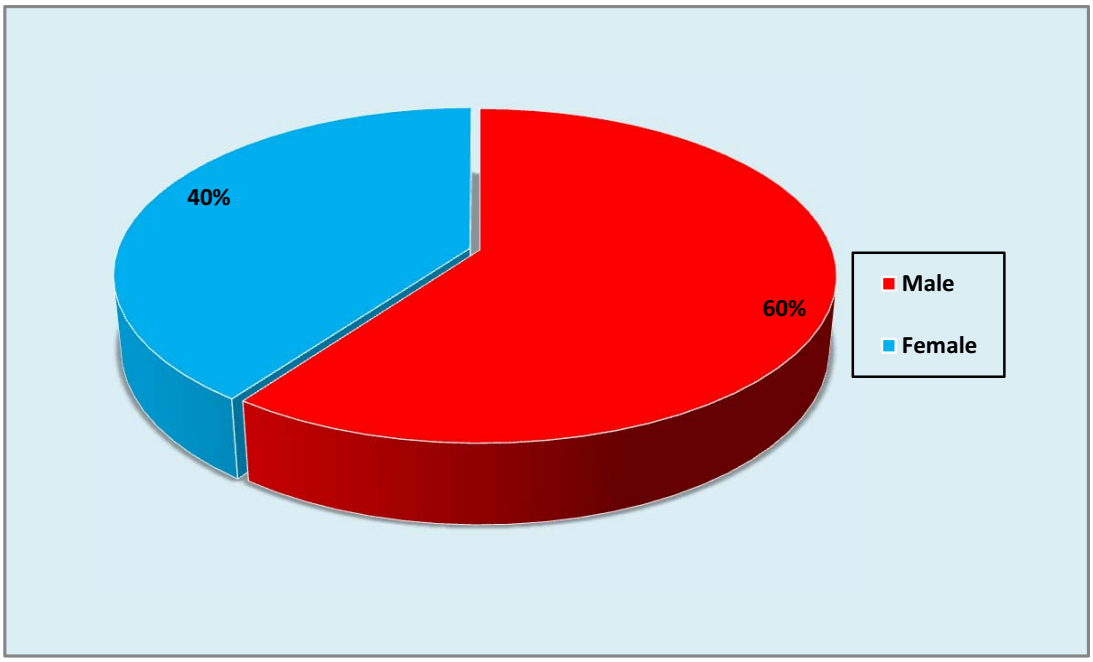


Figure 5: Percentage distribution of Sex of Children with Fever in the Experimental Group

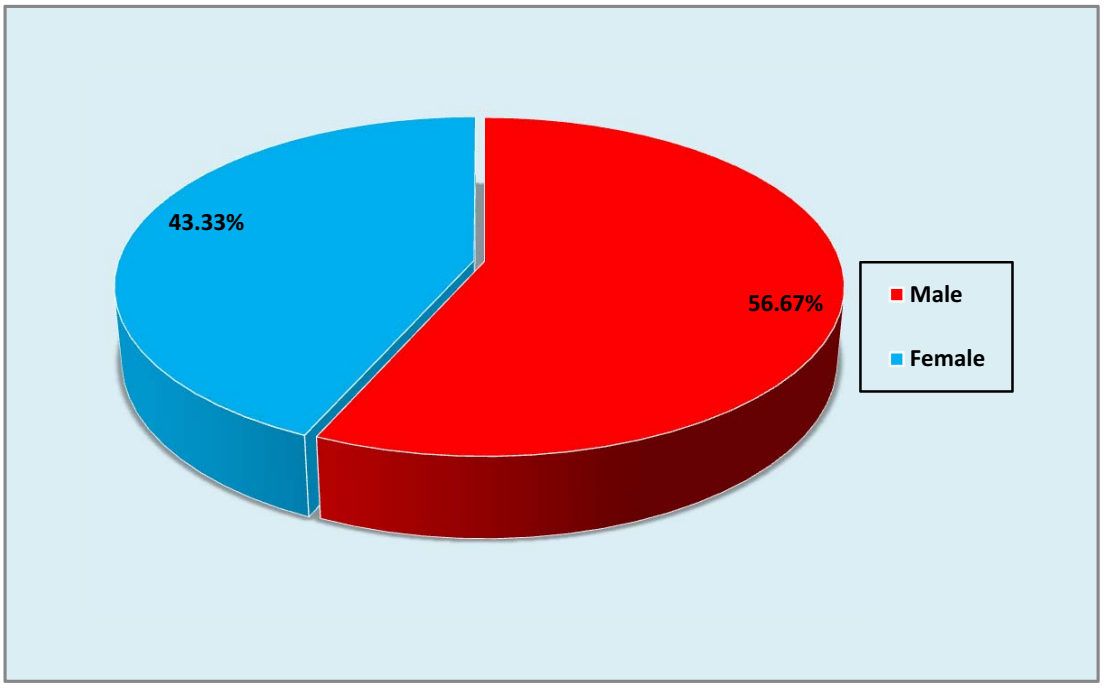


Figure 6: Percentage distribution of Sex of Children with Fever in the Control Group

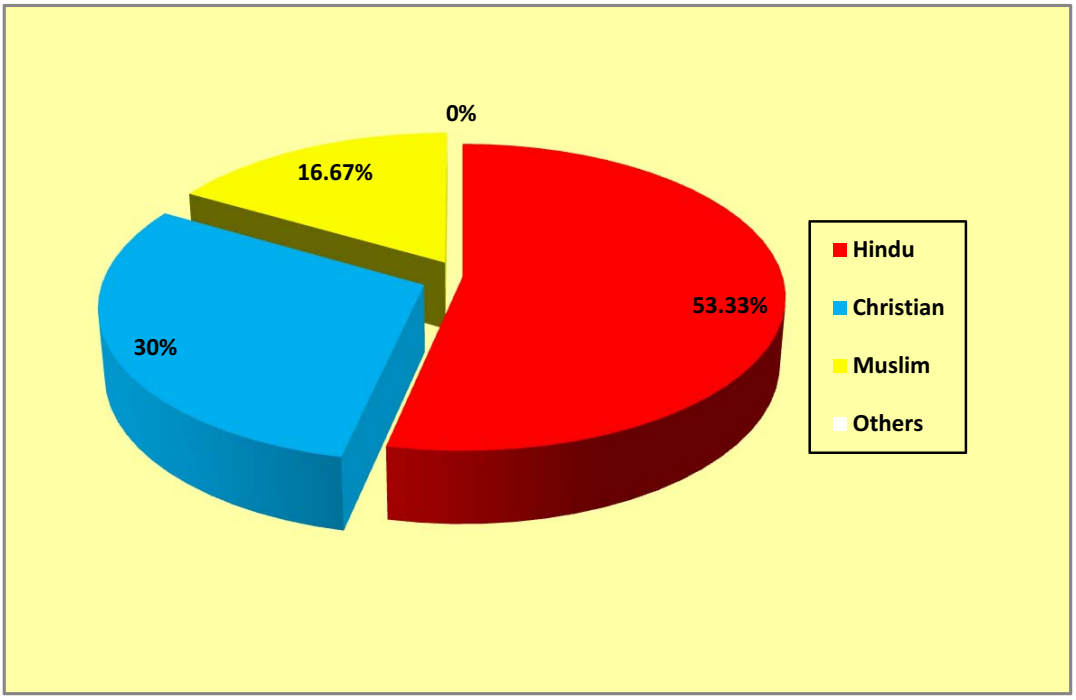


Figure 7: Percentage distribution of Religion among Children with Fever in the Experimental Group

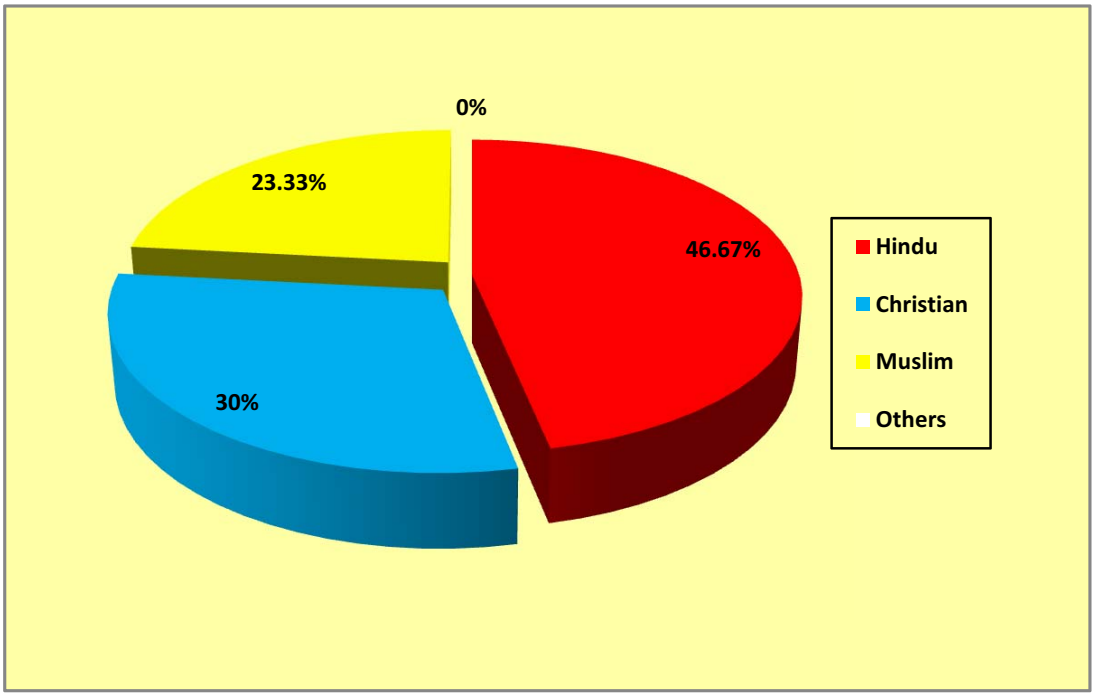


Figure 8: Percentage distribution of Religion among Children with Fever in the Control Group

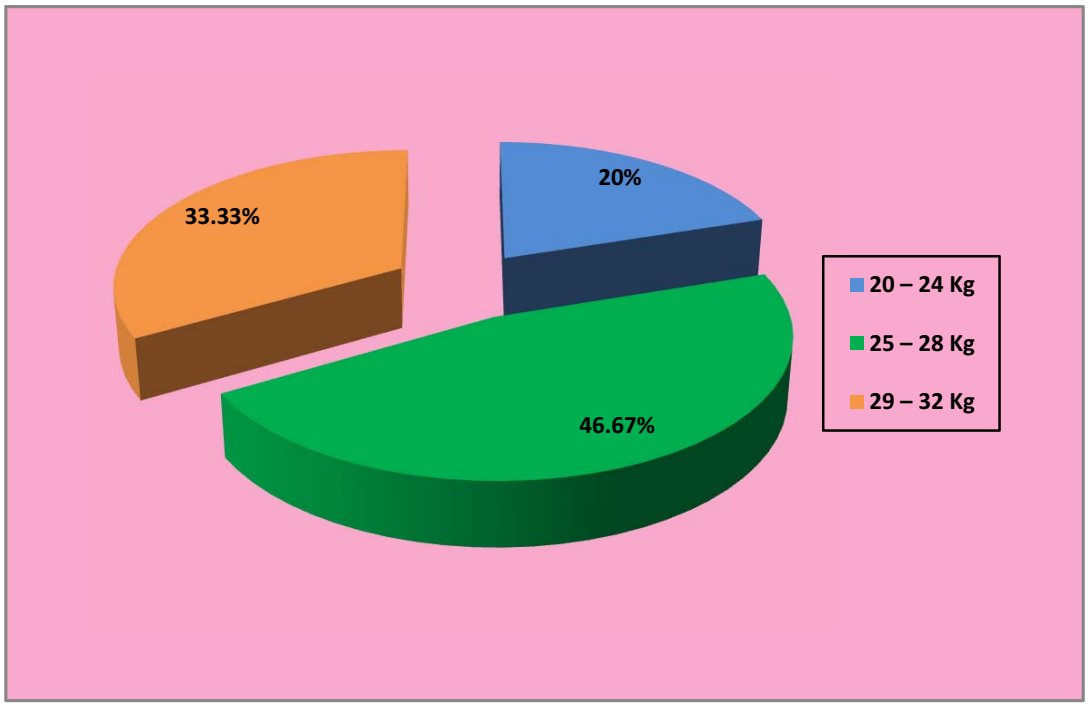


Figure 9: Percentage distribution of Weight of Children with Fever in the Experimental Group

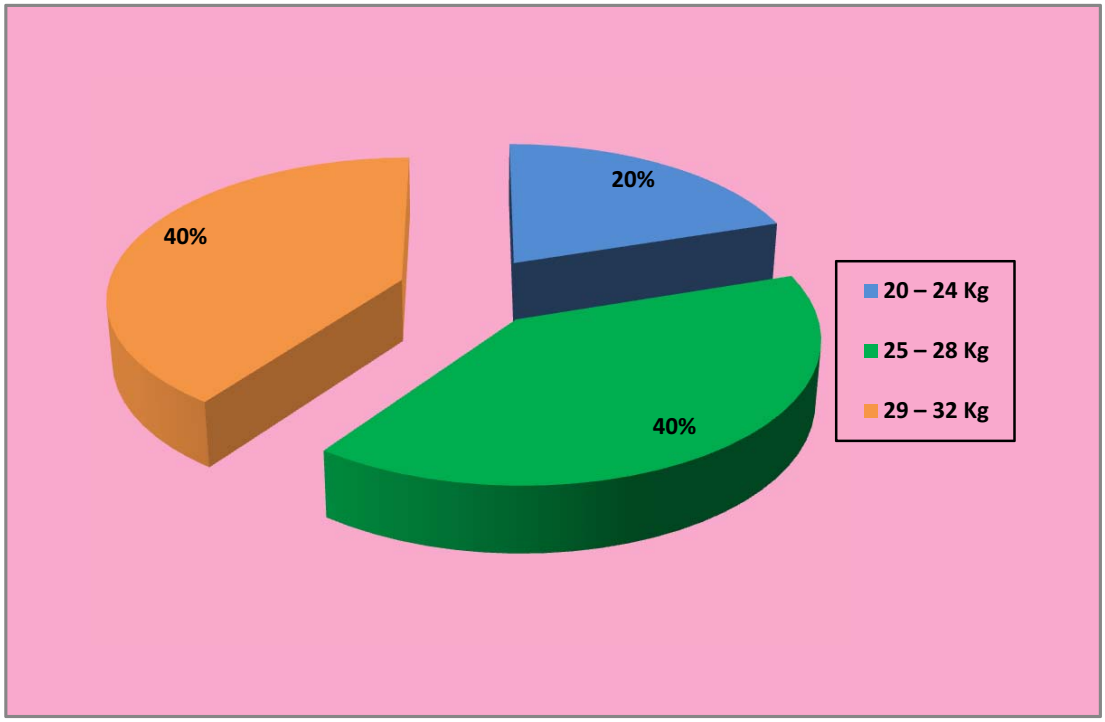


Figure 10: Percentage distribution of Weight of Children with Fever in the Control Group

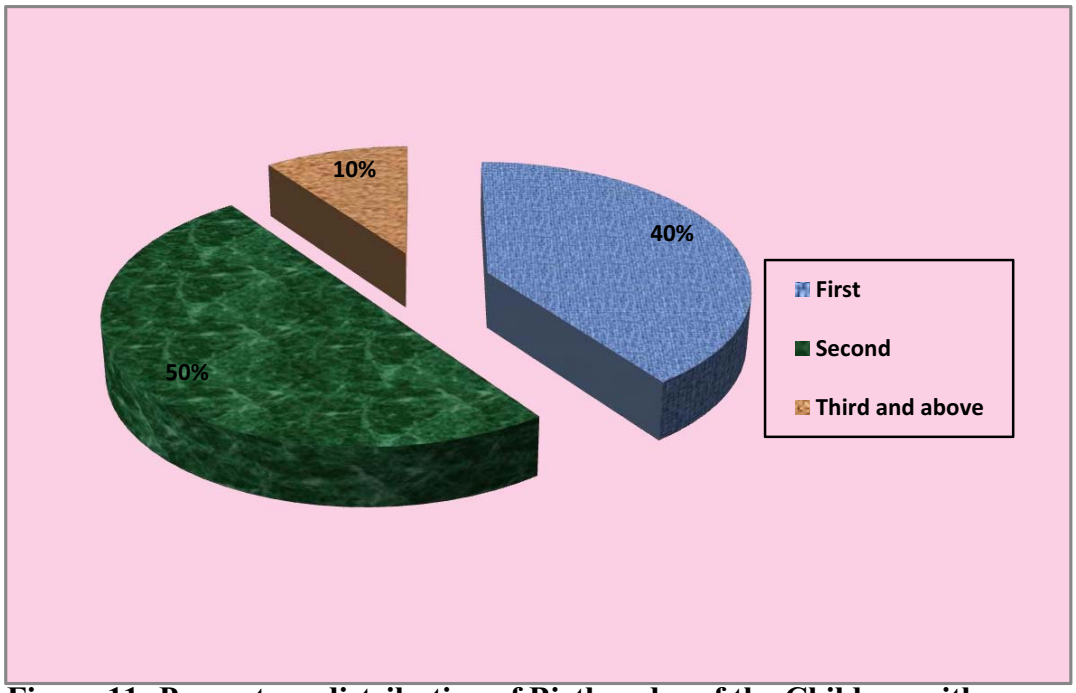


Figure 11: Percentage distribution of Birth order of the Children with Fever in the Experimental Group

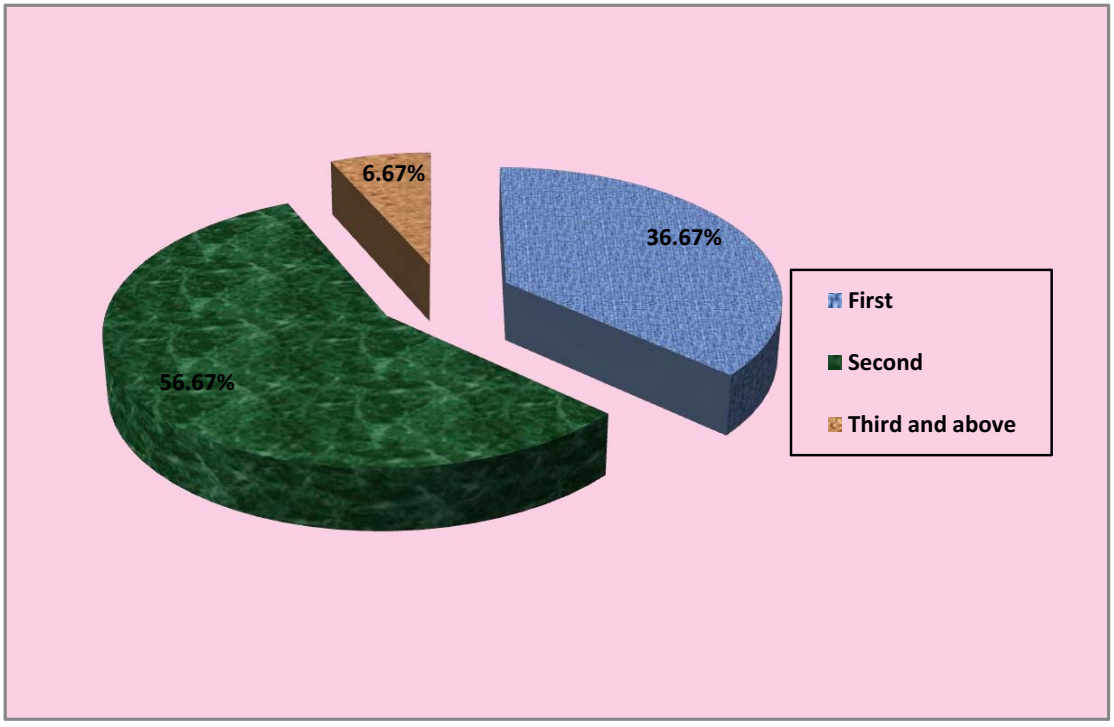


Figure 12: Percentage distribution of Birth order of the Children with Fever in the Control Group

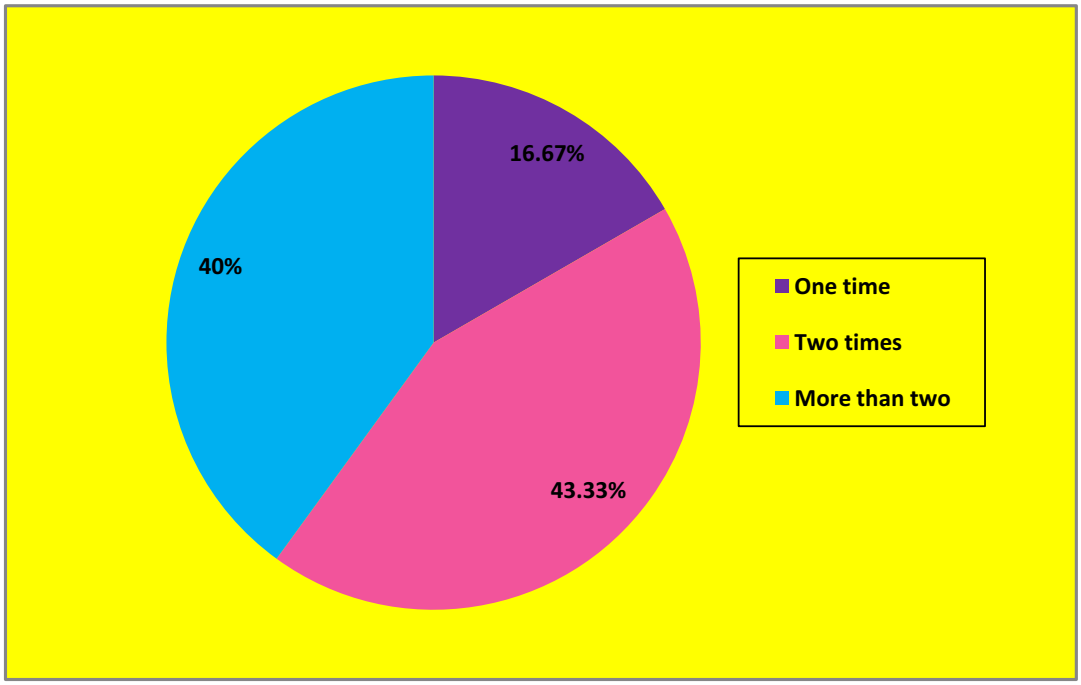


Figure 13: Percentage distribution of Time admitted in the Hospital due to fever among Children with fever in the Experimental Group

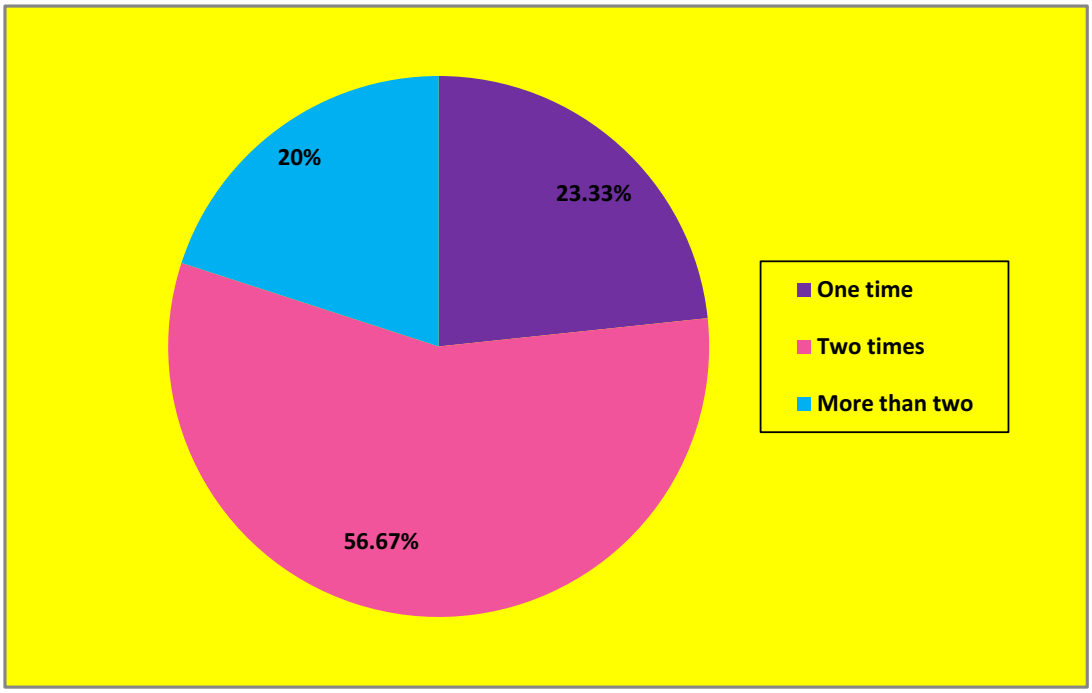


Figure 14: Percentage distribution of Time admitted in the Hospital due to fever among Children with fever in the Control Group

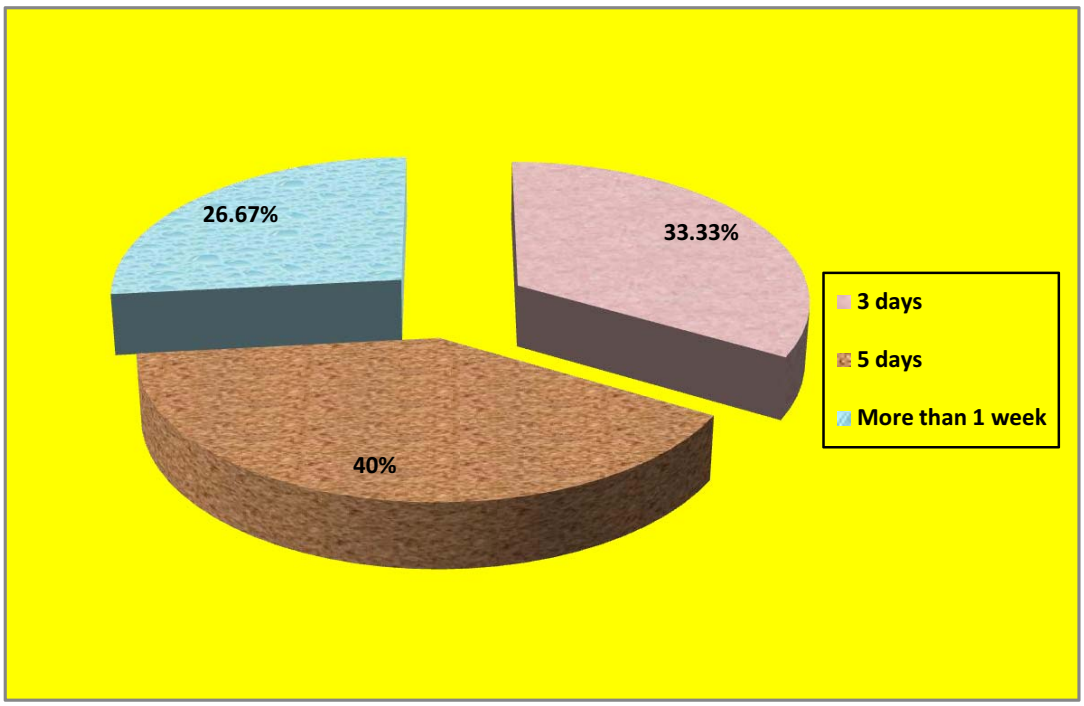


Figure 15: Percentage distribution of No. of days in hospital among Children with Fever in the Experimental Group

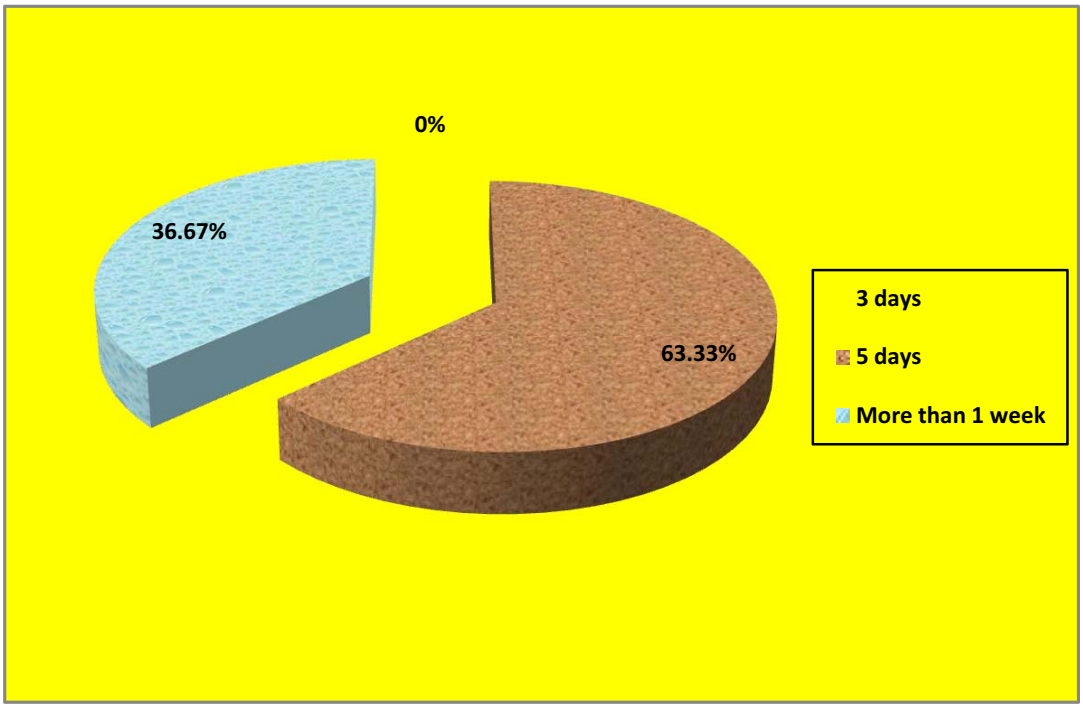


Figure 16: Percentage distribution of No. of days in hospital among Children with Fever in the Control Group

SECTION B: ASSESSMENT OF PRE-TEST AND POST-TEST LEVEL OF BODY TEMPERATURE AMONG CHILDREN IN THE EXPERIMENTAL AND CONTROL GROUP.

Table 2

Frequency and percentage distribution of pretest and post test level of body temperature among children in the experimental group.

N = 30

Body Temperature	Normal (97.0 – 99.0) °F		Low Grade (99.1 – 100.9) °F		High (>100.9) °F	
	No.	%	No.	%	No.	%
Pretest	0	0	3	10.0	27	90.0
Post Test1 (9.30 am)	8	26.67	16	53.33	6	20.0
Post Test2 (10.00 am)	25	83.33	5	16.67	0	0
Post Test3 (10.30 am)	26	86.67	4	13.33	0	0

The table 2 shows that in the pretest, majority 27(90 %) had high temperature and 3(10%) had low grade temperature in the experimental group. Whereas in the post test1 after warm footbath therapy, majority 16(53.33%) had low grade temperature, 8(26.67%) had normal temperature and 6(20%) had high temperature. In the post test2, majority 25(83.33%) had normal temperature and 5(16/67%) had low grade temperature. In the post test 3, majority 26(86.67%) had normal temperature and 4(13.33%) had low grade temperature.

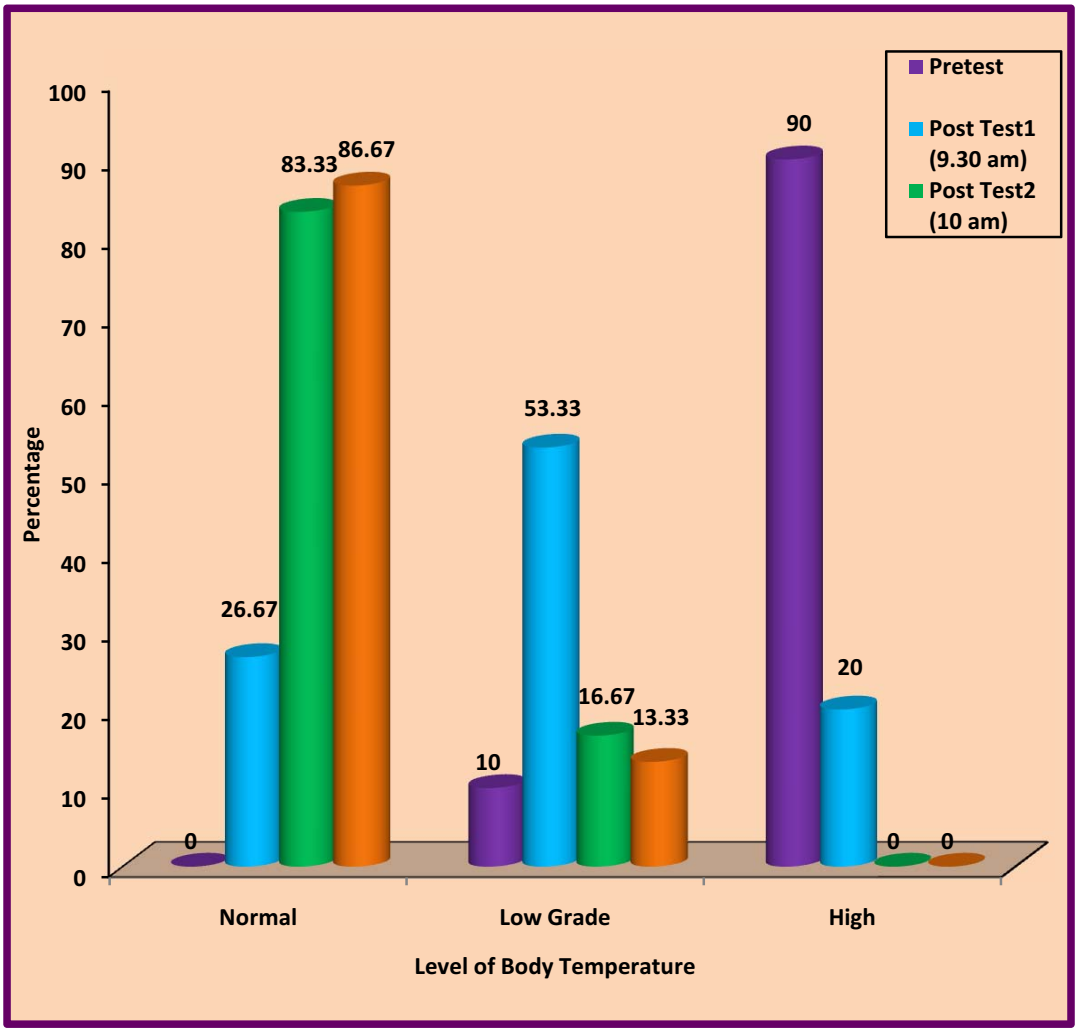


Figure 17: Percentage distribution of pretest and post tests level of body temperature among children in the experimental group

Table 3

Frequency and percentage distribution of pretest and post test level of body temperature among children in the control group.

N = 30

Body Temperature	Normal (97.0 – 99.0) °F		Low Grade (99.1 – 100.9) °F		High (>100.9) °F	
	No.	%	No.	%	No.	%
Pretest	0	0	4	13.33	26	86.67
Post Test1 (9.30 am)	0	0	3	10.0	27	90.0
Post Test2 (10.00 am)	0	0	10	33.33	20	66.67
Post Test3 (10.30 am)	4	13.33	17	56.67	9	30.0

The table 3 shows that in the pretest, majority 26(86.67 %) had high temperature and 4(13.33%) had low grade temperature in the control group. Whereas in the post test1 after hospital routine measures, majority 27(90%) had high temperature, and 3(10%) had low grade temperature. In the post test2, majority 20(66.67%) had high temperature and 10(33.33%) had low grade temperature. In the post test3, majority 17(56.67%) had low grade temperature, 4(13.33%) had normal temperature and 9(30%) had high temperature.

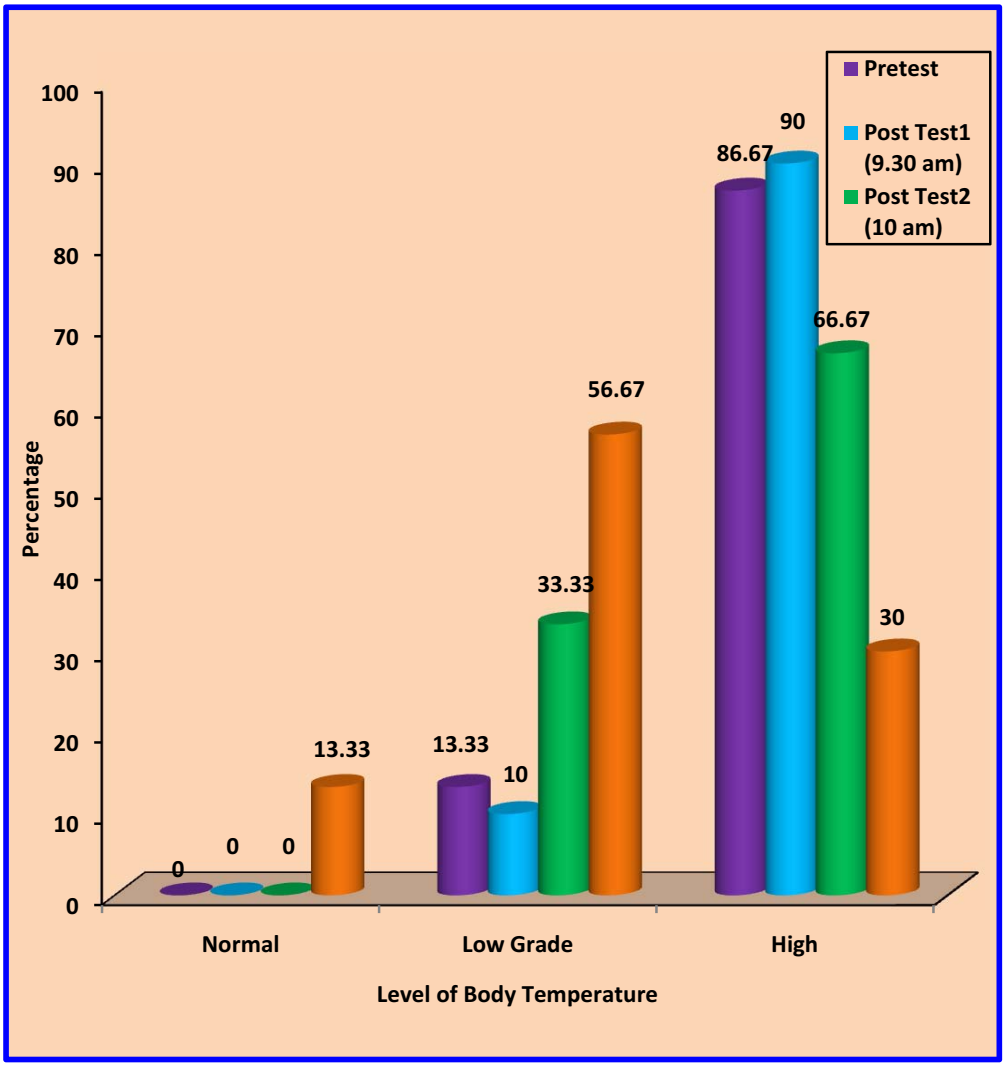


Figure 18: Percentage distribution of pretest and post test level of body temperature among children in the control group

SECTION C: ASSESSMENT OF EFFECTIVENESS OF WARM WATER FOOTBATH THERAPY AMONG CHILDREN IN THE EXPERIMENTAL AND CONTROL GROUP.

Table 4:

Comparison of pretest and post test body temperature score among children in the experimental group.

N = 30

Body Temperature	Mean	S.D	Paired 't' Value
Pretest	102.3	1.36	t = 11.590 p = 0.000, S***
Post Test1 (9.30 am)	99.99	1.12	
Post Test1 (9.30 am)	99.99	1.12	t = 8.360 p = 0.000, S***
Post Test2 (10.00 am)	98.83	0.53	
Post Test2 (10.00 am)	98.83	0.53	t = 0.484 p = 0.632, N.S
Post Test3 (10.30 am)	98.77	0.39	

***p<0.001, S – Significant, N.S – Not Significant

The table 4 shows that in the experimental group, the pretest mean score of body temperature was 102.3±1.36 and the post test1 mean score of body temperature was 99.99±1.12. The calculated paired 't' value of t = 11.590 was found to be statistically significant at p<0.001 level.

The table also portrays that the post test2 mean score of body temperature was 98.83.3±0.53 The comparison between post test1 and post test2 scores revealed that the calculated paired 't' value of t = 8.360 was found to be statistically significant at p<0.001 level.

This clearly shows that there was significant decrease in the level of temperature after the implementation of warm footbath therapy among children in the experimental group after pretest and post test1. This clearly indicates that warm footbath therapy was effective in decreasing the level of temperature among children suffering from fever.

The table also portrays that the post test3 mean score of body temperature was 98.77.3±0.39 The comparison between post test2 and post test3 scores revealed that the calculated paired 't' value of t = 0.484 was not found to be statistically significant.

This clearly shows that warm footbath therapy administered after post test 2 resulted in maintaining the body temperature of the children in the experimental group.

Table 5

Comparison of pretest and post test body temperature score among children in the control group.

N = 30

Body Temperature	Mean	S.D	Paired 't' Value
Pretest	102.30	1.23	t = -1.769 p = 0.087, N.S
Post Test1 (9.30 am)	102.80	0.84	
Post Test1 (9.30 am)	102.80	0.84	t = 6.843 p = 0.000, S***
Post Test2 (10.00 am)	101.15	1.04	
Post Test2 (10.00 am)	101.15	1.04	t = 3.359 p = 0.002, S**
Post Test3 (10.30 am)	100.31	1.05	

***p<0.001, **p<0.01, S – Significant, N.S – Not Significant

The table 5 shows that in the control group, the pretest mean score of body temperature was 102.3±1.23 and the post test1 mean score of body temperature was 102.80±0.84. The calculated paired 't' value of t = -1,769 was not found to be statistically significant.

The table also portrays that the post test2 mean score of body temperature was 101.15.3±1.04. The comparison between post test1 and post test2 scores revealed that the calculated paired 't' value of t = 6.843 was found to be statistically significant at p<0.001 level.

This clearly shows that there was significant decrease in the level of temperature after the hospital routine measures among children in the control group after post test1 and post test2.

The table also portrays that the post test3 mean score of body temperature was 100.31.3±1.05 The comparison between post test2 and post test3 scores revealed that the calculated paired 't' value of t = 3.359 was found to be statistically significant at p<0.001 level.

Table 6

Comparison of pretest body temperature score among children between the experimental and control group.

N = 60(30+30)

Group	Mean	S.D	Unpaired 't' Value
Experimental Group	102.3	1.36	t = 0.000 p = 1.000, N.S
Control Group	102.3	1.23	

N.S – Not Significant

The table 6 shows that in the experimental group, the pretest mean score of body temperature was 102.3±1.36 and in the control group the pretest mean score of body temperature was 102.8±1.23. The calculated unpaired 't' value of t = 0.000 was not found to be statistically significant. This clearly shows that there was no significant decrease in the pretest level of body temperature among children with fever in the experimental and control group.

Table 7

Comparison of post test body temperature score among children between the experimental and control group.

N = 60(30+30)

	Group	Mean	S.D	Unpaired 't' Value
Post Test1	Experimental	99.99	1.12	t = 10.919 p = 0.000, S***
	Control Group	102.80	0.84	
Post Test2	Experimental Group	98.83	0.53	t = 10.839 p = 0.000, S***
	Control Group	101.15	1.04	
Post Test3	Experimental Group	98.77	0.39	t = 7.459 p = 0.000, S***
	Control Group	100.31	1.05	

***p<0.001, S – Significant

The table 7 shows that in the experimental group, the post test1 mean score of body temperature was 99.99±1.12 and in the control group the post test1 mean score of body temperature was 102.8±0.84. The calculated unpaired 't' value of t = 10.919 was found to be statistically significant at p<0.001 level.

The table also revealed that in the experimental group, the post test2 mean score of body temperature was 98.83±0.53 and in the control group the post test2 mean score of body temperature was 101.15±1.04. The calculated unpaired 't' value of t = 10.839 was found to be statistically significant at p<0.001 level.

The table also revealed that in the experimental group, the post test3 mean score of body temperature was 98.77±0.30 and in the control group the post test3 mean score of body temperature was 100.31±1.05. The calculated unpaired 't' value of t = 7.459 was found to be statistically significant at p<0.001 level.

This clearly shows that there was significant decrease in the post test level of body temperature among children with fever in the experimental group after the administration of warm footbath therapy among children than the control group children who had undergone normal hospital routine measures.

SECTION D: ASSOCIATION OF POST TEST LEVEL OF BODY TEMPERATURE AMONG CHILDREN WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

Table 8

Association of post test level of body temperature among children with their selected demographic in the experimental group.

N = 30

Demographic Variables	Normal (97.0 – 99.0) °F		Low Grade (99.1 – 100.9) °F		Chi-Square Value
	No.	%	No.	%	
Age of child					χ^2=2.162 d.f = 2 p = 0.339 N.S
6 - 7 years	10	33.3	1	3.3	
8 - 9 years	10	33.3	3	10.0	
10 - 12 years	6	20.0	0	0	
Sex of the child					χ^2=0.192 d.f = 1 p = 0.661 N.S
Male	16	53.3	2	6.7	
Female	10	33.3	2	6.7	
Religion					χ^2=1.502 d.f = 2 p = 0.472 N.S
Hindu	15	50.0	1	3.3	
Christian	7	23.3	2	6.7	
Muslim	4	13.3	1	3.3	
Others	-	-	-	-	
Weight of the child					χ^2=2.390 d.f = 2 p = 0.303 N.S
20 - 24	5	16.7	1	3.3	
25 - 28	11	36.7	3	10.0	
29 - 32	10	33.3	0	0	
Height of the child					χ^2=1.243 d.f = 2 p = 0.537 N.S
70 cm - 90cm	2	6.7	0	0	
91cm - 120cm	12	40.0	1	3.3	
121cm - 150cm	12	40.0	3	10.0	
Birth order of the child					χ^2=0.577 d.f = 2 p = 0.749 N.S
First	10	33.3	2	6.7	
Second	13	43.3	2	6.7	
Third and above	3	10.0	0	0	
Number of times admitted in hospital due to fever					χ^2=2.097 d.f = 2 p = 0.350 N.S
One time	5	16.7	0	0	
Two times	10	33.3	3	10.0	
More than two	11	36.7	1	3.3	

Demographic Variables	Normal (97.0 – 99.0) °F		Low Grade (99.1 – 100.9) °F		Chi-Square Value
	No.	%	No.	%	
No. of days in hospital					χ^2=2.596 d.f = 2 p = 0.273 N.S
3 days	10	33.3	0	0	
5 days	10	33.3	2	6.7	
More than 1 week	6	20.0	2	6.7	
Father educational status					χ^2=2.163 d.f = 3 p = 0.539 N.S
Primary	3	10.0	1	3.3	
Secondary	4	13.3	1	3.3	
Degree/Diploma	9	30.0	0	0	
Uneducated	10	33.3	2	6.7	
Fathers occupational status					χ^2=2.091 d.f = 3 p = 0.554 N.S
Private	7	23.3	1	3.3	
Government	3	10.0	1	3.3	
Self employed	8	26.7	2	6.7	
	8	26.7	0	0	
Mothers educational status					χ^2=3.359 d.f = 3 p = 0.340 N.S
Primary	3	10.0	1	3.3	
Secondary	1	3.3	1	3.3	
Degree/Diploma	13	43.3	1	3.3	
Uneducated	9	30.0	1	3.3	
Mothers occupational status					χ^2=1.298 d.f = 2 p = 0.523 N.S
Private	9	30.0	1	3.3	
Government	6	20.0	2	6.7	
Self employed	11	36.7	1	3.3	
Housewife	-	-	-	-	
Type of drainage					χ^2=0.871 d.f = 1 p = 0.351 N.S
Open	13	43.3	1	3.3	
Closed	13	43.3	3	10.0	
Drinking water					χ^2=0.192 d.f = 2 p = 0.908 N.S
Tap water	8	26.7	1	3.3	
Boiled water	10	33.3	2	6.7	
Well water/above	8	26.7	1	3.3	

N.S – Not Significant

The above table 8 shows that none of the demographic variables had shown statistically significant association with post test level of body temperature among children with fever in the experimental group.

CHAPTER V

DISCUSSION

An elevated temperature, most frequently form fever but occasionally cost by hyperthermia is one of the most common symptoms of illness in children. The fever is an elevation in set point such that body temperature is regulated at a higher level may be arbitrarily defined as temperature above 38^{o} C (100.4^{o}F). The principal reason for treating fever is the relief of discomfort. Relief measures include pharmacologic and non pharmacologic intervention (Hydrotherapy)

The present study was conducted to assess the effectiveness of warm water foot bath therapy among children with fever in Government head Quarters Hospital, Pudukkottai.

This chapter discussed the major findings of the study and reviews them in terms of result from other studies.

The first objective of the study was to assess the pretest level of body temperature among children with fever in the experimental group and control group. The level of body temperature was assessed through clinical thermometers.

The investigator concluded that the pretest, majority 27 (90%) had high temperature and 3 (10%) had low grade temperature in the experimental group. In control group, majority 26 (86.67%) had high temperature and 4 (13.33%) had low grade temperature in the control group.

The second objective of the study was to assess the post test level of body temperature among children with fever in the experimental and control group.

The investigator concluded that in the experimental group after warm water foot bath therapy, in post test 1 Majority 16 (53.33%) had low grade

temperature, 8 (26.67%) had normal temperature and 6 (20%) had high temperature, in post test 2, majority 25 (83.33%) had normal temperature, 5 (16/67%) had low grade temperature and in post test 3, majority 26(86.67%) had normal temperature, 4(13.33%) had low grade temperature. Whereas in control group after hospital measures, in post test 1 majority 27(90%) had high temperature, 3(10%) had low grade temperature, in post test 2 majority 20(66.67%) had high temperature, 10 (33.33%) had low grade temperature and in post test 3, majority 17(56.67%) had low grade temperature, 4(13.33%) had normal temperature, 9(30%) had high temperature. The investigator found that control group children with fever did not received warm water footbath therapy. Hence the stated hypotheses 2 were accepted. These finding were support by Sindhu Joseph (2013) who stated that warm water foot bath therapy was effective in reduction of body temperature among children aged 6-12 years during fever.

The third objective of the study was to evaluate the effectiveness of warm water foot bath therapy on level of body temperature among children with fever in the experimental group.

The investigator found that in the experimental group, the pre test mean score of body temperature was 102.3 + 1.36 and the post test 1 mean score of body temperature was 99.99 + 1.12. The calculated paired 't' value of t=11.590 was found to be statistically significant at P<0.001 level.

The post test 2 means score of body temperature was 98.83.3 $\pm$ 0.53. The comparison between post test 1 and post test 2 scores revealed that the calculated paired 't' value of t=8.360 was found to be statistically significant at P<0.001 level. This clearly shows that there was significant decrease in the level of temperature after the implementation of warm water foot bath therapy among children in the experimental group after pretest and post test 1. This clearly indicates that warm foot bath therapy was effective in decreasing the level of temperature among children suffering from fever.

The post test 3 means score of body temperature was 98.77.3 +0.39. The comparison between post test 2 and post test 3 score of revealed that the calculated paired 't' value of t=0.484 was not found to be statistically significant. This clearly shows that warm footbath therapy administered after post test 2 resulted in maintaining the body temperature of the children in the experimental group.

Whereas in control group, the pretest mean score of body temperature was 102.3±1.23 and the post test 1 mean score of body temperature was 102.80±0.84. The calculated paired 't' value of t = -1,769 was not found to be statistically significant, the post test 2 mean score of body temperature was 101.15.3±1.04. The comparison between post test1 and post test 2 scores revealed that the calculated paired 't' value of t = 6.843 was found to be statistically significant at $p<0.001$ level and the post test 3 mean score of body temperature was 100.31.3±1.05 The comparison between post test 2 and post test 3 scores revealed that the calculated paired 't' value of t = 3.359 was found to be statistically significant at $p<0.001$ level. This clearly shows that there was significant decrease in the level of temperature after the hospital routine measures among children in the control group after post test 2 and post test 3.

The comparison of pretest body temperature score among children between the experimental and control group shows that in the experimental group, the pretest mean score of body temperature was 102.3±1.36 and in the control group the pretest mean score of body temperature was 102.8±1.23. The calculated unpaired 't' value of t = 0.000 was not found to be statistically significant. This clearly shows that there was no significant decrease in the pretest level of body temperature among children with fever in the experimental and control group.

Whereas in the comparison of post test body temperature score among children between the experimental and control group shows that in the experimental group, the post test1 mean score of body temperature was

99.99±1.12 and in the control group the post test1 mean score of body temperature was 102.8±0.84. The calculated unpaired 't' value of t = 10.919 was found to be statistically significant at p<0.001 level, in the experimental group, the post test 2 mean score of body temperature was 98.83±0.53 and in the control group the post test 2 mean score of body temperature was 101.15±1.04. The calculated unpaired 't' value of t = 10.839 was found to be statistically significant at p<0.001 level, in the experimental group, the post test 3 mean score of body temperature was 98.77±0.30 and in the control group the post test 3 mean score of body temperature was 100.31±1.05. The calculated unpaired 't' value of t = 7.459 was found to be statistically significant at p<0.001 level. This clearly shows that there was significant decrease in the post test level of body temperature among children with fever in the experimental group after the administration of warm footbath therapy among children than the control group children who had undergone normal hospital routine measures.

The fourth objective of this study was to find out the association between the post tests levels of body temperature with their selected demographic variables in experimental group.

The investigator found that the chi square value showed that none of the demographic variables had shown statistically significant association with post test level of body temperature among children with fever in the experimental group.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATIONS, LIMITATIONS AND RECOMMENDATIONS

This chapter presents the summary of the study and conclusion drawn. It classifies limitation of the study, implications, recommendations in different areas like nursing practice, nursing education, nursing administration, nursing research and recommendations for the further study.

SUMMARY OF THE STUDY

A quasi experimental study to evaluate the effectiveness of warm water foot bath therapy on fever among children with fever in government head quarters hospital, pudukkottai.

THE FOLLOWING OBJECTIVES WERE SET FOR THE STUDY

1. To assess the pretest level of body temperature among children with fever in the experimental group and control group.

2. To assess the post test level of body temperature among children with the fever in the experimental and control group.

3. To evaluate the effectiveness of warm water foot bath therapy of level of body temperature children with fever in the experimental group.

4. Find out the association between the post test levels of body temperature among children with fever with their selected demographic variables in experimental group.

HYPOTHESES

1. H_1 : The mean post test level of body temperature would be significantly lower than the pre test level of temperature in the experimental group.
2. H_2 : The mean post test level body of temperature in experimental group would be significantly lower than the mean post level of temperature in the control group.
3. H_3 : The effectiveness of warm water foot bath therapy on the level of body temperature among children with fever in the experimental group.
4. H_4 : There would be significant association between the post test level of body temperature among children with fever any selected demographic variables in the experimental group.

The conceptual model of the study was based on the **J .M. KENNY'S OPEN SYSTEM MODEL.** The study was conducted by quasi experimental with pre test – post test control group design. Purposive sampling was used to select the study sample. The instrument used for data collection was clinical thermometer.

The data analyzed and interpreted in terms of objectives and research hypothesis. Descriptive statistics [FREQUENCY, PERCENTAGE, MEAN AND STANDARD DEVIATION] and inferential statistics [paired and unpaired "t" test] and chi square were used to test the research hypotheses.

MAJOR FINDINGS OF THE STUDY

1. In the experimental group, majority 13(43.33%) were in the age group of 8-9 years, 18 (60%) were male, 16(53.33%) were Hindus, 14 (46.67%) weighted 25-28 kg, 15(50%) were in the height range of 121 cm – 150 cm, 15(50%) were second born child, 13 (43.33%) were admitted in hospital due to fever for two times, 12 (40%) stayed 4 in the hospital, 12 (40%) of father were uneducated, 10 (33033%) of fathers were self employed, 14(46.67%) of mothers were degree diploma holders, 12 (40%) of mothers were self employed, 16(53.33%) had closed type of drainage and 12 (40%) had boiled drinking water.

   Whereas in control group majority 12(40%) were in the age group of 6 – 7 years and 8-9 years, 17 (56.67%) were male 14 (46.67%) were Hindus, 12(40%) weighed 25 – 28 kg and 29 – 32 kg, 13(43.33%) were in the height range of 91cm – 120cm, 17(56.67%) were second born child, 17(56.67%) were admitted hospital due to fever for two times, 19 (3.33%) stayed 5 days in the hospital 18 (60%) of fathers were uneducated 12 (40%) of fathers were self employed. 1(36.67%) of mothers were degree, diploma holders and had secondary education, 12 (40%) of mothers were self employed, 26(86.67%) had closed type of drainage and 111(36.67%) had well water for drinking.

2. In the pretest, majority 27(90 %) had high temperature and 3(10%) had low grade temperature in the experimental group. Whereas in the post test1 after warm footbath therapy, majority 16(53.33%) had low grade temperature, 8(26.67%) had normal temperature and 6(20%) had high temperature. In the post test 2, majority 25(83.33%) had normal temperature and 5(16/67%) had low grade temperature. In the post test 3, majority 26(86.67%) had normal temperature and 4(13.33%) had low grade temperature.

3. In the pretest, majority 26(86.67 %) had high temperature and 4(13.33%) had low grade temperature in the control group. Whereas in the post test1 after hospital routine measures, majority 27(90%) had high temperature, and 3(10%) had low grade temperature. In the post test2, majority

20(66.67%) had high temperature and 10(33.33%) had low grade temperature. In the post test3, majority 17(56.67%) had low grade temperature, 4(13.33%) had normal temperature and 9(30%) had high temperature.

4. In the experimental group, the pretest mean score of body temperature was 102.3±1.36 and the post test1 mean score of body temperature was 99.99±1.12. The calculated paired 't' value of t = 11.590 was found to be statistically significant at p<0.001 level. The post test 2 mean score of body temperature was 98.83.3±0.53 The comparison between post test1 and post test 2 scores revealed that the calculated paired 't' value of t = 8.360 was found to be statistically significant at p<0.001 level. This clearly shows that there was significant decrease in the level of temperature after the implementation of warm footbath therapy among children in the experimental group after pretest and post test1. This clearly indicates that warm footbath therapy was effective in decreasing the level of temperature among children suffering from fever. The post test 3 mean score of body temperature was 98.77.3±0.39 The comparison between post test 2 and post test3 scores revealed that the calculated paired 't' value of t = 0.484 was not found to be statistically significant. This clearly shows that warm footbath therapy administered after post test 2 resulted in maintaining the body temperature of the children in the experimental group.

5. In the control group, the pretest mean score of body temperature was 102.3±1.23 and the post test1 mean score of body temperature was 102.80±0.84. The calculated paired 't' value of t = -1,769 was not found to be statistically significant. The post test 2 mean score of body temperature was 101.15.3±1.04. The comparison between post test1 and post test2 scores revealed that the calculated paired 't' value of t = 6.843 was found to be statistically significant at p<0.001 level. This clearly shows that there was significant decrease in the level of temperature after the hospital routine measures among children in the control group after post test1 and post test 2. The post test 3 mean score of body temperature was 100.31.3±1.05 The comparison between post test 2 and post test 3 scores

revealed that the calculated paired 't' value of t = 3.359 was found to be statistically significant at p<0.001 level.

6. In the experimental group, the pretest mean score of body temperature was 102.3±1.36 and in the control group the pretest mean score of body temperature was 102.8±1.23. The calculated unpaired 't' value of t = 0.000 was not found to be statistically significant. This clearly shows that there was no significant decrease in the pretest level of body temperature among children with fever in the experimental and control group.

7. In the experimental group, the post test 1 mean score of body temperature was 99.99±1.12 and in the control group the post test1 mean score of body temperature was 102.8±0.84 and the calculated unpaired 't' value of t = 10.919 was found to be statistically significant at p<0.001 level, In the experimental group, the post test 2 mean score of body temperature was 98.83±0.53 and in the control group the post test 2 mean score of body temperature was 101.15±1.04 and the calculated unpaired 't' value of t = 10.839 was found to be statistically significant at p<0.001 level, In the experimental group, the post test 3 mean score of body temperature was 98.77±0.30 and in the control group the post test 3 mean score of body temperature was 100.31±1.05 and the calculated unpaired 't' value of t = 7.459 was found to be statistically significant at p<0.001 level. This clearly shows that there was significant decrease in the post test level of body temperature among children with fever in the experimental group after the administration of warm footbath therapy among children than the control group children who had undergone normal hospital routine measures.

8. None of the demographic variables had shown statistically significant association with post test3 level of body temperature among children with fever in the experimental group.

CONCLUSION

As for this research is concerned, the interventional study proved that there is a reduction of level of body temperature among children with fever. The findings of the present study, agree with the findings of the previous clinical study regarding warm water footbath therapy.

The pretest and post test and standard deviation were calculated. The reduction of level of body temperature was statistically significant at 0.01 level. Therefore the warm water foot bath therapy is a very effective to reduce the level of body temperature among children with fever.

IMPLICATIONS

The findings of the study have several implications on nursing practice, nursing education, nursing administration and nursing research.

NURSING PRACTICE

The extended role of the professional nurse emphasizes those activities which promote health i.e. primitive, preventive, curative and rehabilitative behavior among people.

The study findings will create awareness among nurses and enlighten their knowledge and skill about the importance of non pharmacological management which include complimentary therapy – hydrotherapy (warm water foot bath therapy) during fever among children.

This will help the nurse to understand the importance of providing cost defective care and prevent side effect from the pharmacological management.

It will help the nurse to understand the need for the children with fever and provided need based care.

The nurse should contribute to the evidence based practice through the experience gained from the applications of warm foot bath therapy while caring children with fever.

NURSING EDUCATION

The present study would help nursing students to understand the advantages and importance of non pharmacological management which include complimentary therapy – hydrotherapy (warm water foot bath therapy) and need based care.

The effectiveness of warm water foot bath in reducing level body temperature is to be published in the nursing journals to make awareness among the nursing students.

This study results can be used as an example by the nurse educator in the classrooms, when giving instructions regarding the care of children with fever. Both the teachers and students can involve themselves to incorporating the warm water foot bath therapy during care of children with fever.

Nursing students can educate the parents of the children to use warm foot bath therapy to maintain normal body temperature level while getting fever.

NURSING ADMINISTRATION

The present study would help the nurse administrators to understand the importance of complementary therapy to the children with fever in pediatric unit.

It would help the nurse administrator to change the norms and rules of inculcating the non pharmacological management like complementary therapy (Hydro therapy) in pediatric unit.

Nurse administrators could formulate the policies and procedures regarding the care of children with fever.

The nurse administrators could plan to conduct awareness programme for the parents of children regarding the home remedy about complementary

therapy such us hydro therapy – warm water foot bath therapy while take care of dear children with fever in home setup.

Nurse administrator can instruct the staff nurse to encourage the parents to use warm water foot bath therapy when children suffered with fever.

NURSING RESEARCH

The present study would help the future nurse researchers to carry out further studies in reduction of fever among children and compare with the present study findings.

The study findings would also help the nurse researchers in studying the constrains and barriers in providing need based care to the children with fever and found ways to solve the problem.

Through this study the researchers may practice evidence based practiced research.

LIMITATION

1. The study was limited to evaluate the effectiveness of warm water foot bath therapy only on fever among children with fever who was taking antipyretics.
2. The study was limited to the time allotted for administration of warm water foot bath therapy (30 minutes)

RECOMMENDATIONS

1. The study could be conducted by using large population to generalize the findings.
2. A longitudinal study could be conducted to assess the effectiveness of warm water foot bath therapy in maintaining body temperature level.
3. A similar study can be conduct to find out the knowledge and practice of warm water foot bath therapy on fever among nurses.
4. A similar study could be conducted on different age group of children.
5. This study could be done in multiple settings.
6. The self instructional module can be used in the hospitals to improve the knowledge and practice regarding child care.

REFERANCES

BOOK REFERENCES

1. Adele Pillitteri (1999) "Child Health Nursing" 3rd edition Published by Lippincott Williams and Wilkins Publication.
2. A Chares (2006) " Text book of Pediatric Nursing" 3rd edition Elsevier Publications.
3. A.Parthasarathy (2009) IAP Text book of peadiatrics. New Delhi , Jaypee brothers publications.
4. Adele Pillitteri (1999) "Child Health Nursing" 1st edition Published by Lippincott Publicatins.
5. Assuma Beevi TM (2012) "Text book of Paediatrics Nursing" 3rd edition Published by Elsevier Publications.
6. Behermanl (1992) "Text book of Pediatrics Nursing" 6th edition Published by Elsevier Publicatins.
7. Dorathy R Marlow "Text book of Pediatrics Nursing" 6th edition Published by Elsevier Publications.
8. Kyle. (2009) "Essentials of Peadiatric Nursing" 2nd edition Lippincott Williams and Wilkins Publication
9. Lewis (2004) "Text book of Medical Surgical Nursing" 5th edition Published by Mosby Publications.
10. Nelson (2007) "Text book of Paediatrics Nursing" 18th edition Published by Elsevier Publications.
11. OP.Ghai (2004) Essential of paediatrics 7th edition CBS publishers and distributors pvt ltd.

12. Parul Datta (2009) "Pediatric Nursing" 2nd Edition, Jaypee brothers Medical Publications [p] Ltd, New Delhi.

13. Potter.Perry (2008) "Basic Nursing" 6th edition Published by Elsevier Publications.

14. Rimple Sharma (2013) " Essentials of Pediatrics Nursing" 1st edition Jaypee brothers Publications.

15. Tambulwadkar RS (2005) "Text book of Paediatric Nursing" 3rd edition Published by Vora Medical Publications.

16. Taylor (2011) "Fundamentals of Nursing" 7th edition Published by Wolters Kulwer Publications.

17. Thomas S. Vijayakumar. Naik R . Moses Antonisamy. B (2009)comparative effectiveness of tepid sponging and Antipyretic drugs vs only antipyretic drugs in the management of fever among children Indian Pediatrics

18. Wong's (2005) " Essentials of Pediatrics Nursing" 6th edition , Harcourt Indian private limited Publications.

JOURNAL REFERANCES

- ✓ Robin W.Robertsson J. Thomas G.(2003) Nursing management of fever in children, a systemic review. International journal of nursing practice. 99[1]
- ✓ Selvakumari.S. (2001) Hot water foot bath therapy for patients with fever . Nightingale Nursing time International Nursing Journal [12];24-27.
- ✓ Oshikoya KA, NJOKAUMA OF, BELBJA,et al (2007) Family self-medication for children in an urban area of Nigeria. Pediatric Nursing Journal.8[3]; 124-30.
- ✓ Nicoll A (2000) Integrated management of childhood illness in resource- poor countries; on initiative from the world health organization. Trans royal soc trop med hyg.94[1];9-11
- ✓ Schmitt B. Fever Phobia Misconceptions of Parents about fevers . Amj Dis Child .1980;
- ✓ Adam D. stankov G. treatment of fever in childhood . warm water foot bath therapy .W

Websites:

- http:// www.pubmed.com
- http:// www.ask.com
- http:// www.medplus.com
- http:// www.wikipedia.com
- http:// www.google.com
- http:// www.intelihealth.com

APPENDIX A(a)

DEMOGRAPHIC VARIABLES

1. **Age of child**
    a. 6 - 7 years
    b. 8 - 9 years
    c. 10 - 12 years
2. **Sex of the child**
    a. Male
    b. Female
3. **Religion**
    a. Hindu
    b. Christian
    c. Muslim
    d. Others
4. **Weight of the child**
    a. 20 – 24
    b. 25 – 28
    c. 29 – 32
5. **Height of the child**
    a. 70 cm - 90cm
    b. 91cm - 120cm
    c. 121cm - 150cm

6. **Birth order of the child**
    a. First
    b. Second
    c. Third and above
7. **Number of times admitted in hospital due to fever**
    a. One time
    b. Two times
    c. More than two
8. **No. of days in hospital**
    a. 3 days
    b. 5 days
    c. More than 1 week
9. **Father educational status**
    a. Primary
    b. Secondary
    c. Degree/Diploma
10. **Fathers occupational status**
    a. Private
    b. Government
    c. Self employed

11. Mothers educational status

a. Primary

b. Secondary

c. Degree/Diploma

d. Uneducated

12. Mothers occupational status

a. Private

b. Government

c. Self employed

d. Housewife

13. Type of drainage

a. Open

b. Closed

14. Drinking water

a. Tap water

b. Boiled water

c. Well water/above

பகுதி I

சமுதாயக்குடும்ப காரணிகள்

1. வயது (ஆண்டுகளில்)

   அ. 6 – 7 ஆண்டு வரை

   ஆ. 8 – 9 ஆண்டு வரை

   இ. 10 – 11 ஆண்டு வரை

2. பாலினம்

   அ. ஆண்

   ஆ. பெண்

3. சமயம்

   அ. இந்து

   ஆ. முஸ்லீம்

   இ. கிறிஸ்துவர்

4. குழந்தையின் எடை

   அ. 20 – 25 எடை

   ஆ. 25 – 28 எடை

   இ. 29 – 32 எடை

5. குழந்தையின் உயரம்

   அ. 70 செ.மீ – 90 செ.மீ

   ஆ. 91 செ.மீ – 12 செ.மீ

   இ. 121 செ.மீ – 150 செ.மீ

6. எத்தனையாவது குழந்தை

   அ. முதல்

   ஆ. இரண்டாவது

   இ. மூன்று (அல்லது) அதற்கு மேல்

7. காய்ச்சலால் எத்தனை முறை மருத்துவமனையில் அனுமதிக்தீர்கள்?

   அ. ஒன்று

   ஆ. இரண்டு

   இ. மூன்று (அல்லது) அதற்கு மேல்

8. எத்தனை நாட்கள் மருத்துவமனையில் இருந்தீர்கள்

   அ. மூன்று நாள்

   ஆ. ஐந்து நாள்

   இ. ஒரு வாரத்திற்கு மேல்

9. தந்தையின் கல்வித் தகுதி
    அ. ஆரம்பப்பள்ளி வரை
    ஆ. உயர்நிலைப்பள்ளி வரை
    இ. பல்கலைக்கழகம் பட்டம்
    ஈ. எழுத படிக்க தெரியாதவர்
10. தந்தையின் வேலைத் தகுதி
    அ. தனிநபர் நிறுவத்தினர்
    ஆ. அரசு நிறுவனத்தினர்
    இ. சுயதொழில்
11. தாயின் கல்வித் தகுதி
    அ. ஆரம்பப்பள்ளி வரை
    ஆ. உயர்நிலைப்பள்ளி வரை
    இ. பல்கலைக்கழகம் பட்டம்
    ஈ. எழுத படிக்க தெரியாதவர்
12. தாயின் வேலைத் தகுதி
    அ. தனிநபர் நிறுவத்தினர்
    ஆ. அரசு நிறுவனத்தினர்
    இ. சுயதொழில்
    ஈ. இல்லத்தரசி
13. கழிவு நீர் வகை
    அ. மூடிய நிலையில்
    ஆ. திறந்த வெளியில்
14. குடிதண்ணீர்
    அ. குழாய் தண்ணீர்
    ஆ. வெந்நீர்
    இ. கிணற்று நீர் அதற்கு மேல்

APPENDIX A (b)

CLINICAL VARIABLE

LEVEL OF BODY TEMPERATURE

VARIABLE :	BEFORE ADMINISTRATION OF WARM WATER FOOTBATH THERAPY		AFTER ADMINISTRATION OF WARM WATER FOOTBATH THERAPY	
	Date:	Level of Body Temperature among Children	Date:	Level of Body Temperature among Children
EXPERIMENTAL GROUP:				
CONTROL GROUP:				

APPENDIX B (a)

LETTER SEEKING PERMISSION TO CONDUCT THE RESEARCH STUDY

From

Ms.PANDICHELVI.G
M.Sc., Nursing II Year,
Karpaga Vinayaga College of Nursing,
Pudukkottai.

To

The Principal,
Karpaga Vinayaga College of Nursing.
Pudukkottai.

Respected Madam,

Sub: **Letter Seeking permission to conduct the Research study.**

…

I am a final year M.Sc. Nursing student of Karpaga Vinayaga College of Nursing, Pudukkottai. I would like to conduct a study as a part of partial fulfillment for the degree of Masters in Nursing. The statement of the problem is "A QUASI EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF WARM WATER FOOT BATH THERAPY ON FEVER AMONG CHILDREN WITH FEVER IN GOVERNMENT HEAD QUARTERS HOSPITAL, PUDUKKOTTAI."

Thanking you in anticipation

Yours Faithfully,

Pandichelvi.G

Place:

Date:

APPENDIX B (b)

PERMISSION LETTER TO CONDUCT STUDY

From,
Ms.G.PANDICHELVI
M.Sc. Nursing II year
Karpaga Vinayaga college of nursing
Pudukkottai

To,
The Hospital superintendent
Government head quarters hospital
Pudukkottai.

Respected Madam,

Sub: Permission to conduct research study research study request regarding,

This is to inform you that, I am Ms.G.Pandichelvi, II[nd] year M.sc nursing student of Karpaga Vinayaga college of nursing Pudukkottai, have to conduct a research project "**To assess the effectiveness of warm water foot bath therapy in reduction of fever among children in selected hospital Pudukkottai, during the year 2015"** which is to be submitted to Dr M.G.R. medical university in partial fulfilment of university requirement for the award of master of nursing degrees.

I am very much interested in conducting the study among children. I shall be obliged if you kindly grant me permission for conducting the study in your esteemed hospital. I assure you that confidentiality will be maintained throughout the study. Kindly consider my request and grant me permission for the same.

Thanking you

Place : Pudukkottai

Date : 03.11.2015

Yours sincerely

Ms. G.Pandichelvi

APPENDIX B (c)

CERTIFICATE FOR VALIDITY

This is to certify that the structured questionnaire schedule on "A Quasi Experimental Study To Evaluate The Effectiveness Of Warm Water Foot Bath Therapy on Fever Among Children With Fever In Government Head Quarters Hospital, Pudukkottai, during the year 2016" has been validated and found appropriate with mentioned suggestion.

Signature :

Name :

Designation :

Name of the College :

APPENDIX B (d)

LIST OF EXPERTS FOR CONTENT VALIDITY

1. **Mrs. Parasakthi, M.Sc.(N).,**
   Vice Principal,
   Dr. G. Sakunthala College of Nursing,
   Trichy.

2. **Ms.Stella Sagaya Mary**, **M.Sc.(N)., Ph.D**
   Vice Principal,
   Matha College of Nursing,
   Vanpuram, Manamadurai.

3. **Ms.Sherene.G.Edwin, M.Sc.(N)., Ph.D**
   Principal,
   Indira College of Nursing,
   Trichy.

4. **Ms.Metilda, M.Sc.(N)**
   Vice Principal,
   Servite College of Nursing,
   Trichy.

5. **Ms. M.Vanichitradevi, M.Sc (N)**
   Vice Principal, HOD of Child Health Nursing,
   Karpaga Vinayaga College of Nursing,
   Pudukkottai.

APPENDIX B (e)

REQUISITION LETTER TO MEDICAL GUIDE

From

G.PANDICHELVI
M.Sc Nursing II Year
Karpaga Vinayaga College of Nursing
Pudukkottai

To

Dr.N.Maheswari, MBBS., DCH
Senior Civil surgeon
Government Head Quarters Hospital
Pudukkottai

Respected Madam

Sub: Requesting permission for the guidance to conduct the study,

regarding.

…

I am II year M.Sc. Nursing Student Karpaga Vinayaga college of Nursing, Pudukkottai. I would like to conduct a study as a part of partial fulfillment for the degree of masters in Nursing. The statement of the problem "A Quasi Experimental Study To Evaluate The Effectiveness Of Warm Water Foot Bath Therapy on Fever Among Children With Fever In Government Head Quarters Hospital, Pudukkottai, during the year 2016".

I humbly request you to give me guidance and suggestions for conducting my study.

Thanking you

Yours faithfully

(G.Pandichelvi).

Place : Pudukkottai

Date :

APPENDIX C
HYDROTHERPHY

DEFINITION

Hydrotherapy, or water therapy, is the application of water to initiate cure. All three forms of water [liquid, steam, ice] can be used therapeutically.

THE GOAL OF HYDROTHERPHY

The goal of hydrotherapy is to improve the circulation and quality of blood. This is important because blood delivers nutrients to and removes wastes from tissues and organs. If circulation is poor or slow, healing nutrients cannot be delivered and toxins cannot be removed, which causes degeneration of the tissues and organs. By improving the quality of blood, more nutrients are available for cells to use and toxins are managed more efficiently.

GENERAL THERAPEUTIC USES OF HYDROTHERPHY

- Pain and swelling of injuries
- Fever
- Elimination of toxins
- Antispasmodic
- Constipation
- Improve immune function.

Alternating hot and cold [contrast hydrotherapy] is a common hydrotherapy treatment. The hot application expands blood vessels, filling them with blood, and the cold application constricts the blood vessels, forcing the with blood to move on to other parts of the body. Hot and cold can be applied to any part of the body that is inflamed, congested, or injured. Treatment normally consists of applying a hot cloth for 3 minutes then a cold cloth for 30 seconds.

HOT FOOT BATH

A hot foot bath is the immersion of both feet and ankles in hot water for 10-30 minutes. It is an excellent way to draw blood from inflamed or congested areas of the body .indications for fever use are foot and leg cramps, sore throat, cold, flu, nausea, insomnia, and chest or pelvic congestion.

ADVANTAGES OF HYDROTHERAPY

- ✓ It is almost always available.
- ✓ It is easy to learn and perform.
- ✓ It is painless and has no ill side effects.
- ✓ It is inexpensive and can be done at home.

LETTER REQUESTING FOR VALIDATION

From

G.PANDICHELVI
M.Sc. Nursing II Year
Karpaga Vinayaga College of Nursing
Pudukkottai

To

Respected Madam

Sub: Letter Requesting opinion and suggestions from experts for establishing content validity of the tools.

…

I am II year M.Sc. Nursing Student of Karpaga Vinayaga college of Nursing, Pudukkottai. Under Dr. M.G.R Medical University, Chennai as a partial fulfillment of my M.Sc.Nursing Degree Programme. I am conducting a research study on "A QUASI EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF WARM WATER FOOT BATH THERAPY ON FEVER AMONG CHILDREN WITH FEVER IN GOVERNMENT HEAD QUARTERS HOSPITAL, PUDUKKOTTAI", one of the initial steps of the research study is to develop a questionnaire to assess the effectiveness of music therapy.

I am sending the tool for content validity and for your expect and valuable opinion.

I will be very thankful to return it to the undersigned.

Thanking you

Yours faithfully

(G.Pandichelvi).

Place : Pudukkottai

Date :

Signature of the seal of validation